YAMAHA

8

OWNER'S MANUAL

U.S.A.Edition
LIT-18626-08-33
6M8-F8199-1E

EMU25062

⚠ WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

YAMAHA LIT-CALIF-65-01

ZMU01690

Read this manual carefully before operating this outboard motor. Keep this manual onboard in a waterproof bag when boating. This manual should stay with the outboard motor if it is sold.

EMU31283

To the owner

Thank you for choosing a Yamaha outboard motor. This Owner's Manual contains information needed for proper operation, maintenance and care. A thorough understanding of these simple instructions will help you obtain maximum enjoyment from your new Yamaha. If you have any question about the operation or maintenance of your outboard motor, please consult a Yamaha dealer.
In this Owner's Manual particularly important information is distinguished in the following ways.

⚠ : This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

EWM00781

⚠ WARNING

A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

ECM00701

NOTICE

A NOTICE indicates special precautions that must be taken to avoid damage to the outboard motor or other property.

TIP:
A TIP provides key information to make procedures easier or clearer.

Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your machine and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.

TIP:
The 8MH and the standard accessories are used as a base for the explanations and illustrations in this manual. Therefore some items may not apply to every model.

EMU25131

8
OWNER'S MANUAL
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EMU33622

Outboard motor safety

Observe these precautions at all times.

EMU36501

Propeller

People can be injured or killed if they come in contact with the propeller. The propeller can keep moving even when the motor is in neutral, and sharp edges of the propeller can cut even when stationary.

- Stop the engine when a person is in the water near you.
- Keep people out of reach of the propeller, even when the engine is off.

EMU33630

Rotating parts

Hands, feet, hair, jewelry, clothing, PFD straps, etc. can become entangled with internal rotating parts of the engine, resulting in serious injury or death.

Keep the top cowling in place whenever possible. Do not remove or replace the cowling with the engine running.

Only operate the engine with the cowling removed according to the specific instructions in the manual. Keep hands, feet, hair, jewelry, clothing, PFD straps, etc. away from any exposed moving parts.

EMU33640

Hot parts

During and after operation, engine parts are hot enough to cause burns. Avoid touching any parts under the top cowling until the engine has cooled.

EMU33650

Electric shock

Do not touch any electrical parts while starting or operating the engine. They can cause shock or electrocution.

EMU33671

Engine shut-off cord (lanyard)

Attach the engine shut-off cord so that the engine stops if the operator falls overboard or leaves the helm. This prevents the boat from running away under power and leaving people stranded, or running over people or objects.

Always attach the engine shut-off cord to a secure place on your clothing or your arm or leg while operating. Do not remove it to leave the helm while the boat is moving. Do not attach the cord to clothing that could tear loose, or route the cord where it could become entangled, preventing it from functioning.

Do not route the cord where it is likely to be accidentally pulled out. If the cord is pulled during operation, the engine will shut off and you will lose most steering control. The boat could slow rapidly, throwing people and objects forward.

EMU33810

Gasoline

Gasoline and its vapors are highly flammable and explosive. Always, refuel according to the procedure on page 30 to reduce the risk of fire and explosion.

EMU33820

Gasoline exposure and spills

Take care not to spill gasoline. If gasoline spills, wipe it up immediately with dry rags. Dispose of rags properly.

If any gasoline spills onto your skin, immediately wash with soap and water. Change clothing if gasoline spills on it.

If you swallow gasoline, inhale a lot of gasoline vapor, or get gasoline in your eyes, get immediate medical attention. Never siphon fuel by mouth.

EMU33900

Carbon monoxide

This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which may cause brain damage or

death when inhaled. Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.

EMU33780

Modifications

Do not attempt to modify this outboard motor. Modifications to your outboard motor may reduce safety and reliability, and render the outboard unsafe or illegal to use.

EMU33740

Boating safety

This section includes a few of the many important safety precautions that you should follow when boating.

EMU33710

Alcohol and drugs

Never operate after drinking alcohol or taking drugs. Intoxication is one of the most common factors contributing to boating fatalities.

EMU33720

Personal flotation devices

Have an approved personal flotation device (PFD) on board for every occupant. Yamaha recommends that you must wear a PFD whenever boating. At a minimum, children and non-swimmers should always wear PFDs, and everyone should wear PFDs when there are potentially hazardous boating conditions.

EMU33731

People in the water

Always watch carefully for people in the water, such as swimmers, skiers, or divers, whenever the engine is running. When someone is in the water near the boat, shift into neutral and stop the engine.

Stay away from swimming areas. Swimmers can be hard to see.

The propeller can keep moving even when the motor is in neutral. Stop the engine when a person is in the water near you.

EMU33751

Passengers

Consult your boat manufacturer's instructions for details about appropriate passenger locations in your boat and be sure all passengers are positioned properly before accelerating and when operating above an idle speed. Standing or sitting in non-designated locations may result in being thrown either overboard or within the boat due to waves, wakes, or sudden changes in speed or direction. Even when people are positioned properly, alert your passengers if you must make any unusual maneuver. Always avoid jumping waves or wakes.

EMU33760

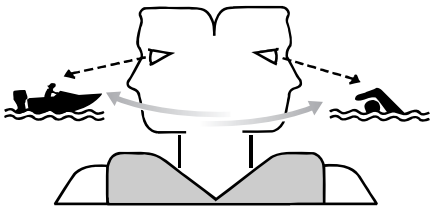
Overloading

Do not overload the boat. Consult the boat capacity plate or boat manufacturer for maximum weight and number of passengers. Be sure that weight is properly distributed according to the boat manufacturers instructions. Overloading or incorrect weight distribution can compromise the boats handling and lead to an accident, capsizing or swamping.

EMU33772

Avoid collisions

Scan constantly for people, objects, and other boats. Be alert for conditions that limit your visibility or block your vision of others.



ZMU06025

Operate defensively at safe speeds and keep a safe distance away from people, objects, and other boats.

- Do not follow directly behind other boats or waterskiers.
- Avoid sharp turns or other maneuvers that make it hard for others to avoid you or understand where you are going.
- Avoid areas with submerged objects or shallow water.
- Ride within your limits and avoid aggressive maneuvers to reduce the risk of loss of control, ejection, and collision.
- Take early action to avoid collisions. Remember, boats do not have brakes, and stopping the engine or reducing throttle can reduce the ability to steer. If you are not sure that you can stop in time before hitting an obstacle, apply throttle and turn in another direction.

EMU33790

Weather

Stay informed about the weather. Check weather forecasts before boating. Avoid boating in hazardous weather.

EMU33800

Accident reporting

Boat operators are required by law to file a Boating Accident Report with their state boating law enforcement agency if their boat is involved in any of the following accidents:

1. There is loss of life or probable loss of life.
2. There is personal injury that requires medical attention beyond first aid.
3. There is property damage to boats or other property over a certain amount.
4. There is complete loss of a boat.

Contact local law enforcement personnel if a report is necessary.

EMU33870

Boat education and training

Operators should take a boating safety course. This may be required in your state. Many of the organizations listed in the next section can provide information about courses in your area.

You may also want to consider an Internet-based program for basic boater education. The Online Boating Safety Course provided by the BoatU.S. Foundation, is approved by the National Association of State Boating Law Administrators (NASBLA) and recognized by the United States Coast Guard. Most, but not all, states accept this course to meet their minimum requirements. While it cannot replace an in-depth course such as one offered by the U.S. Coast Guard, U.S. Power Squadron, or other organization, this online course does provide a general overview of the basics in boating safety, requirements, navigation, and operation. Upon successful completion of the course, the user can download a certificate of completion immediately or, for a small charge, request one by mail. To take this free course, go to boatus.org.

EMU33880

Passenger training

Make sure at least one other passenger is trained to operate the boat in the event of an emergency.

EMU33890

Boating safety publications

Be informed about boating safety. Additional publications and information can be obtained from many boating organizations.

EMU33590

Laws and regulations

Know the marine laws and regulations where you will be boating- and obey them. Several sets of rules prevail according to geographic

location, but all are basically the same as the International Rules of the Road. The rules presented in the following section are condensed- and have been provided for your convenience only.
Contact the U.S. Coast Guard, the National Association of State Boating Law Administrators, or your local Power Squadron for a complete set of rules governing the waters in which you will be using your boat.
EMU33681

Boating organizations

The following organizations provide boating safety training and information about boating safety and laws.

United States Coast Guard
Consumer Affairs Staff (G-BC)
Office of Boating, Public, and Consumer Affairs
U.S. Coast Guard Headquarters
Washington, D.C. 20593-0001
Boating Safety Hotline: 1-800-368-5647
www.uscgboating.org

United States Power Squadrons
1-888-FOR-USPS (1-888-367-8777)
www.usps.org

Boat Owners Association of The United States
1-800-336-BOAT (1-800-336-2628)
www.boatus.com

National Association of State Boating Law Administrators (NASBLA)
1500 Leestown Road, Suite 330
Lexington, KY 40511 859-225-9497
www.nasbla.org

National Marine Manufacturers Association (NMMA)
200 East Randolph Drive
Suite 5100
Chicago, IL 60601
www.nmma.org

Marine Retailers Association of America
155 N. Michigan Ave. Chicago,
IL 60304
www.mraa.com

EMU33690

Basic boating rules (Rules of the road)

Just as there are rules that apply when you are driving on streets and highways, there are waterway rules that apply when you are driving your boat. These rules are used internationally. (For USA: and are also enforced by the United States Coast Guard and local agencies.) You should be aware of these rules, and follow them whenever you encounter another vessel on the water.
EMU33700

Steering and sailing rules and sound signals

Whenever two vessels on the water meet one another, one vessel has the right-of-way; it is called the “stand-on” vessel. The vessel that does not have the right-of-way is called the “give-way” or “burdened”vessel. These rules determine which vessel has the right-of-way, and what each vessel should do.

Stand-on vessel
The vessel with the right-of-way has the duty to continue its course and speed, except to avoid an immediate collision. When you maintain your direction and speed, the other

vessel will be able to determine how best to avoid you.

Give-way vessel

The vessel that does not have the right-of-way has the duty to take positive and timely action to stay out of the way of the Stand-On vessel. Normally, you should not cross in front of the vessel with the right-of-way. You should slow down or change directions briefly and pass behind the other vessel. You should always move in such a way that the operator of the other vessel can see what you are doing.

“ The general prudential rule ”

This rule is called Rule 2 in the International Rules and says,

“ In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances, which may render a departure from the above rules necessary in order to avoid immediate danger.”

In other words, follow the standard rules except when a collision will occur unless both vessels try to avoid each other. If that is the case, both vessels become “ Give-Way ” vessels.

EMU25521

Rules when encountering vessels

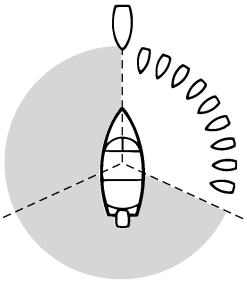
There are three main situations that you may encounter with other vessels which could lead to a collision unless the Steering Rules are followed:

Meeting: (you are approaching another vessel head-on)

Crossing: (you are traveling across the other vessel’s path)

Overtaking: (you are passing or being passed by another vessel)

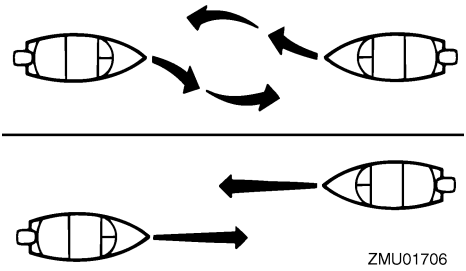
In the following illustration, your boat is in the center. You should give the right-of-way to any vessels shown in white area (you are the Give-Way vessel). Any vessels in the shaded area must yield to you (they are the Give-Way vessels). Both you and the meeting vessel must alter course to avoid each other.



ZMU01705

Meeting

If you are meeting another power vessel head on, and are close enough to run the risk of collision, neither of you has the right-of-way Both of you should alter course to avoid an accident. You should keep the other vessel on your port (left) side. This rule doesn’t apply if both of you will clear one another if you continue on your set course and speed.

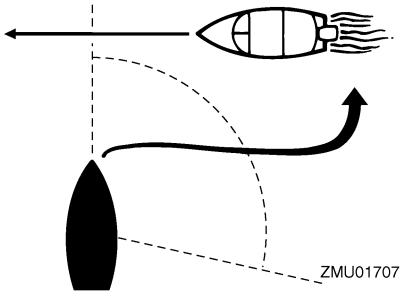


ZMU01706

Crossing

When two power driven vessels are crossing each other’s path close enough to run the risk of collision, the vessel which has the other on the starboard (right) side must keep out of the way of the other. If the other vessel is on your right, you must keep out of its way;

you are the Give-Way vessel. If the other vessel is on your port (left) side, remember that you should maintain course and direction, provided the other vessel gives you the right-of-way as it should.



Overtaking

If you are passing another vessel, you are the "Give-Way" vessel. This means that the other vessel is expected to maintain its course and speed. You must stay out of its way until you are clear of it. Likewise, if another vessel is passing you, you should maintain your speed and direction so that the other vessel can steer itself around you.

EMU25531

Other special situations

There are three other rules you should be aware of when driving your boat around other vessels.

Narrow channels and bends

When navigating in narrow channels, you should keep to the right when it is safe and practical to do so. If the operator of a power-driven vessel is preparing to go around a bend that may obstruct the view of other water vessels, the operator should sound a prolonged blast on the whistle (4 to 6 seconds). If another vessel is around the bend, it too should sound the whistle. Even if no reply is heard, however, the vessel should still proceed around the bend with caution. If you navigate such waters with your boat, you will need to carry a portable air horn, available from local marine supply stores.

Fishing vessel right-of-way

All vessels that are fishing with nets, lines or trawls are considered to be "fishing vessels" under the International Rules. Vessels with trolling lines are not considered fishing vessels. Fishing vessels have the right-of-way regardless of position. Fishing vessels cannot, however, impede the passage of other vessels in narrow channels.

Sailing vessel right-of-way

Sailing vessels should normally be given the right-of-way. The exceptions to this are:

1. When the sailing vessel is overtaking the power-driven vessel, the power-driven vessel has the right-of-way.
2. Sailing vessels should keep clear of any fishing vessel.
3. In a narrow channel, a sailing vessel should not hamper the safe passage of a power-driven vessel that can navigate only in such a channel.

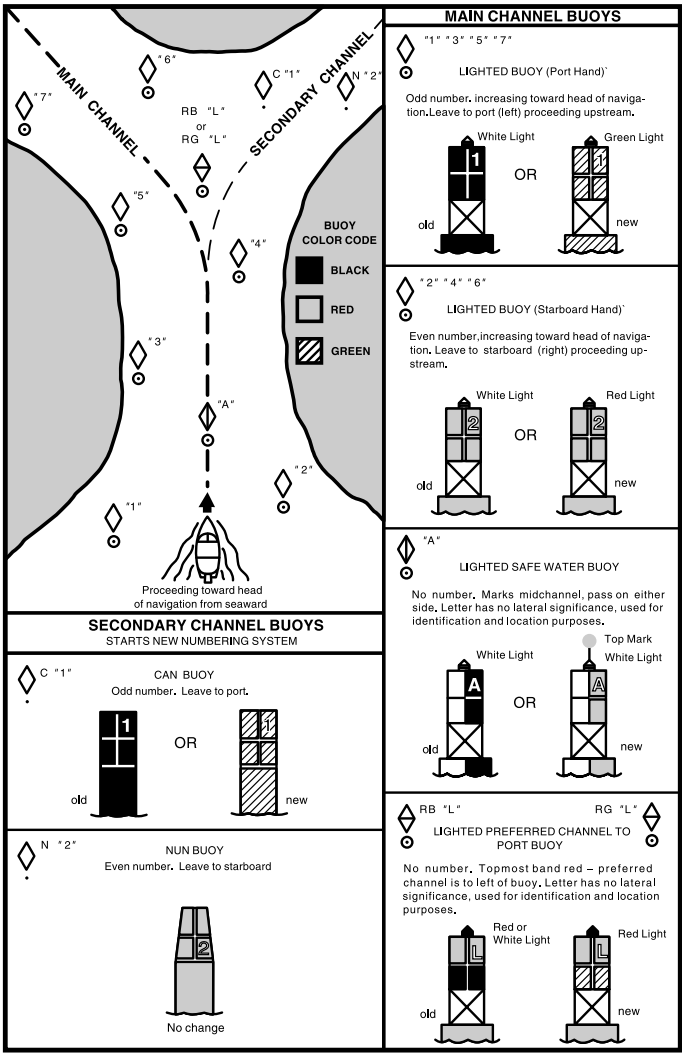
Reading buoys and other markers

The waters of the United States are marked for safe navigation by the lateral system of buoyage. Simply put, buoys and markers have an arrangement of shapes, colors, numbers and lights to show which side of the buoy a boater should pass on when navigating in a particular direction. The markings on these buoys are oriented from the perspective of being entered from seaward (the boater is going towards the port). This means that red buoys are passed on the starboard (right) side when proceeding from open water into port, and black buoys are to port (left) side. When navigating out of port, your position with respect to the buoys should be reversed; red buoys should be to port and

black buoys to starboard.

Many bodies of water used by boaters are entirely within the boundaries of a particular state. The Uniform State Waterway Marking System has been devised for these waters. This system uses buoys and signs with distinctive shapes and colors to show regulatory or advisory information. These markers are white with black letters and orange boarders. They signify speed zones, restricted areas, danger areas, and general information.

Remember, markings may vary by geographic location. Always consult local boating authorities before driving your boat in unfamiliar waters.


MAIN CHANNEL
SECONDARY CHANNEL
"6"
C "1"
N "2"
"7"
RB "L"
or
RG "L"
"5"
"4"
"3"
"A"
"2"
"1"
BUOY
COLOR CODE
BLACK
RED
GREEN
Proceeding toward head
of navigation from seaward
MAIN CHANNEL BUOYS
"1" "3" "5" "7"
LIGHTED BUOY (Port Hand)`
Odd number. increasing toward head of navigation.Leave to port (left) proceeding upstream.
White Light
Green Light
OR
old
new
"2" "4" "6"
LIGHTED BUOY (Starboard Hand)`
Even number,increasing toward head of navigation. Leave to starboard (right) proceeding upstream.
White Light
Red Light
OR
old
new
"A"
LIGHTED SAFE WATER BUOY
No number. Marks midchannel, pass on either side. Letter has no lateral significance, used for identification and location purposes.
Top Mark
White Light
White Light
OR
old
new
RB "L"
RG "L"
LIGHTED PREFERRED CHANNEL TO PORT BUOY
No number. Topmost band red – preferred channel is to left of buoy. Letter has no lateral significance, used for identification and location purposes.
Red or
White Light
Red Light
old
new
SECONDARY CHANNEL BUOYS
STARTS NEW NUMBERING SYSTEM
C "1"
CAN BUOY
Odd number. Leave to port.
OR
old
new
N "2"
NUN BUOY
Even number. Leave to starboard
No change

ZMU01708

EMU25171

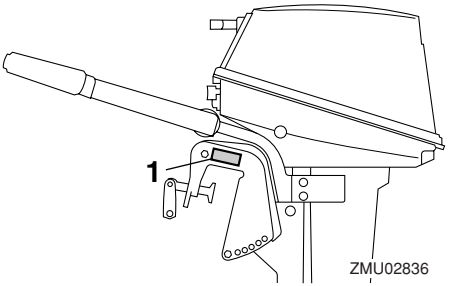
Identification numbers record

EMU25183

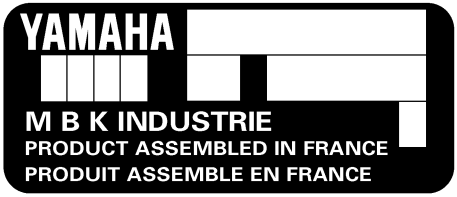
Outboard motor serial number

The outboard motor serial number is stamped on the label attached to the port side of the clamp bracket.

Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Yamaha dealer or for reference in case your outboard motor is stolen.



1. Outboard motor serial number location



ZMU02115

EMU33520

Read manuals and labels

Before operating or working on this motor:

- Read this manual.
- Read any manuals supplied with the boat.
- Read all labels on the outboard motor and the boat.

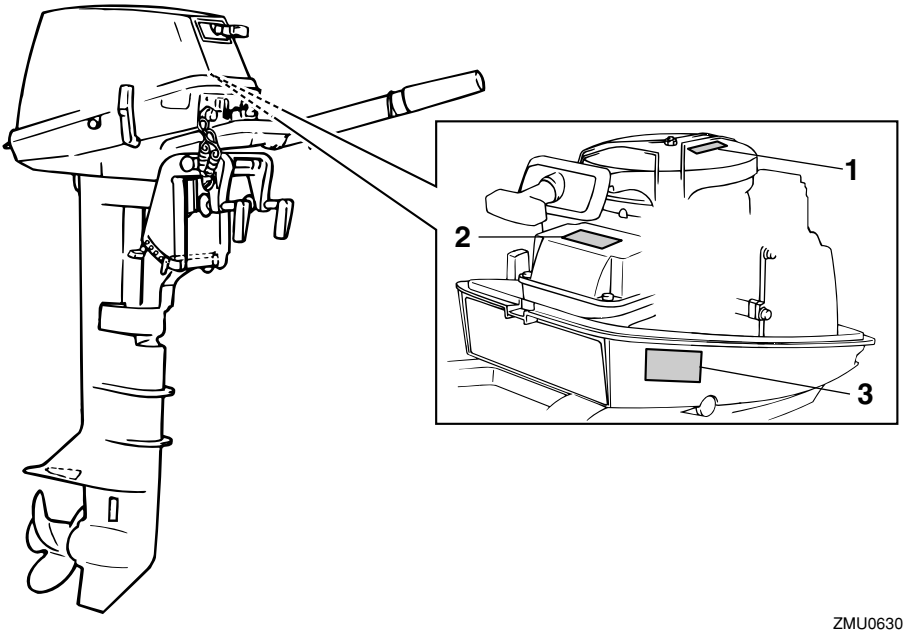
If you need any additional information, contact your Yamaha dealer.

EMU33831

Warning labels

If these labels are damaged or missing, contact your Yamaha dealer for replacements.

8



ZMU06306

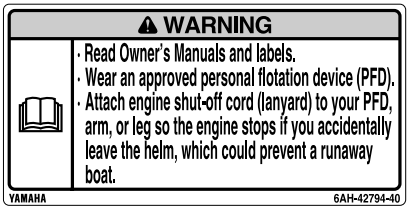
1

⚠ WARNING
Emergency starting does not have start-in-gear protection. Ensure shift control is in neutral before starting engine.
YAMAHA
6AH-81995-40

2

⚠ WARNING
· Keep hands, hair, and clothing away from rotating parts while the engine is running.
· Do not touch or remove electrical parts when starting or during operation.
YAMAHA
6AH-81994-40

3


⚠ WARNING
· Read Owner's Manuals and labels.
· Wear an approved personal flotation device (PFD).
· Attach engine shut-off cord (lanyard) to your PFD, arm, or leg so the engine stops if you accidentally leave the helm, which could prevent a runaway boat.
YAMAHA
6AH-42794-40

ZMU05697

EMU35132

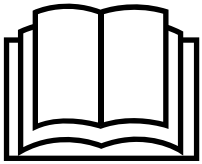
Symbols

The following symbols mean as follows.

Notice/Warning

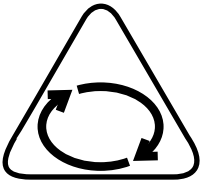
ZMU05696

Read Owner's Manual



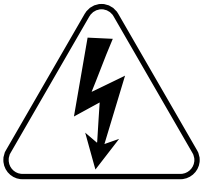
ZMU05664

Hazard caused by continuous rotation



ZMU05665

Electrical hazard



ZMU05666

EMU31480

Specifications

TIP:

"(AL)" stated in the specification data below represents the numerical value for the aluminum propeller installed.

Likewise, "(SUS)" represents the value for stainless steel propeller installed and "(PL)" for plastic propeller installed.

EMU2821E

Dimension:

Overall length:
802 mm (31.6 in)
Overall width:
343 mm (13.5 in)
Overall height S:
977 mm (38.5 in)
Transom height S:
436 mm (17.2 in)
Weight (AL) S:
27.0 kg (60 lb)

Performance:

Full throttle operating range:
4500–5500 r/min
Maximum output:
5.9 kW@5000 r/min
(8 HP@5000 r/min)
Idling speed (in neutral):
900 ±50 r/min

Engine:

Type:
2-stroke L
Displacement:
165.0 cm^3
Bore × stroke:
50.0 × 42.0 mm (1.97 × 1.65 in)
Ignition system:
CDI
Spark plug (NGK):
B7HS-10
Spark plug gap:
0.9–1.0 mm (0.035–0.039 in)
Control system:
Tiller
Starting system:
Manual
Starting carburetion system:
Choke valve
Alternator output:
80 W

Drive unit:

Gear positions:
Forward-neutral-reverse
Gear ratio:
2.08 (27/13)
Trim and tilt system:
Manual tilt
Propeller mark:
N

Fuel and oil:

Recommended fuel:
Regular unleaded gasoline
Min. pump octane:
86
Fuel tank capacity:
12 L (3.17 US gal, 2.64 Imp.gal)
Recommended engine oil:
YAMALUBE 2-stroke outboard motor oil
Fuel:oil ratio:
Regular gasoline:
100 :1
Lubrication:
Pre-mixed fuel and oil
Recommended gear oil:
Hypoid gear oil SAE#90
Gear oil quantity:
0.160 L (0.169 US qt, 0.141 Imp.qt)

Tightening torque for engine:

Spark plug:
25.0 Nm (2.55 kgf-m, 18.4 ft-lb)

Propeller nut:
17.0 Nm (1.73 kgf-m, 12.5 ft-lb)

EMU33554

Installation requirements

EMU33563

Boat horsepower rating

EWM01560

⚠ WARNING

Overpowering a boat can cause severe instability.

Before installing the outboard motor(s), confirm that the total horsepower of your motor(s) does not exceed the boats maximum horsepower rating. See the boat's capacity plate or contact the manufacturer.

EMU33571

Mounting motor

EWM01570

⚠ WARNING

- **Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards.**
- **Because the motor is very heavy, special equipment and training is required to mount it safely.**

Your dealer or other person experienced in proper rigging should mount the motor using correct equipment and complete rigging instructions. For further information, see page 23.

EMU34192

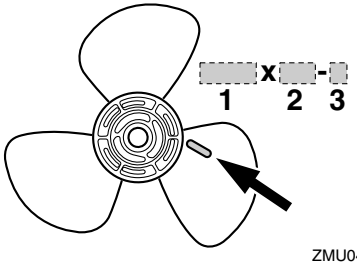
Propeller selection

Next to selecting an outboard, choosing the right propeller is one of the most important purchasing decisions a boater can make. The type, size, and design of your propeller have a direct impact on acceleration, top speed, fuel economy, and even engine life. Yamaha designs and manufactures propellers for every Yamaha outboard motor and every application.

Your outboard motor came with a Yamaha propeller chosen to perform well over a range of applications, but there may be uses where a different propeller would be more appropriate.

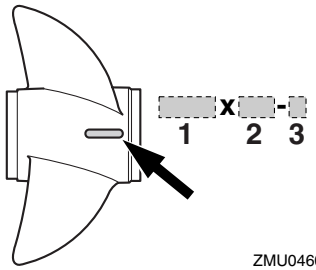
Your Yamaha dealer can help you select the right propeller for your boating needs. Select a propeller that will allow the engine to reach the middle or upper half of the operating range at full throttle with the maximum boatload. Generally, chose a larger pitch propeller for a smaller operating load and a smaller pitch propeller for a heavier load. If you carry loads that vary widely, chose the propeller that lets the engine run in the proper range for your maximum load but remember that you may need to reduce your throttle setting to stay within the recommended engine speed range when carrying lighter loads.

For instructions on propeller removal and installation, see page 50.



ZMU04604

1. Propeller diameter in inches
2. Propeller pitch in inches
3. Type of propeller (propeller mark)



ZMU04605

1. Propeller diameter in inches
2. Propeller pitch in inches
3. Type of propeller (propeller mark)

EMU25770

Start-in-gear protection

Yamaha outboard motors or Yamaha-approved remote control units are equipped with start-in-gear protection device(s). This feature permits the engine to be started only when it is in neutral. Always select neutral before starting the engine.

EMU25651

Engine oil requirements

Recommended engine oil:
YAMALUBE 2-stroke outboard motor oil

If the recommended engine oil is not available, another 2-stroke engine oil with an NMMA-certified TC-W3 rating may be used.

EMU36360

Fuel requirements

EMU36781

Gasoline

Use a good quality gasoline that meets the minimum octane rating. If knocking or pinging occurs, use a different brand of gasoline or premium unleaded fuel. Yamaha recomends that you use alcohol-free (see Gasohol) gasoline whenever possible.

Recommended gasoline:
Regular unleaded gasoline with a minimum Octane rating of 86 (Pump Octane Number) = (R+M)/2

ECM01981

NOTICE

- **Do not use leaded gasoline. Leaded gasoline can seriously damage the engine.**
- **Avoid getting water and contaminants in the fuel tank. Contaminated fuel can cause poor performance or engine damage. Use only fresh gasoline that has been stored in clean containers.**

Gasohol

There are two types of gasohol: gasohol containing ethanol (E10) and that containing methanol. Ethanol can be used if the ethanol content does not exceed 10% and the fuel meets the minimum octane ratings. E85 is a fuel containing 85% ethanol and must not be used in your outboard motor. All ethanol blends containing more than 10% ethanol can cause fuel system damage or cause engine starting and running problems. Yamaha does not recommend gasohol containing methanol because it can cause fuel system damage or engine performance problems.

It is recommended that you install a water-separating marine fuel filter assembly (10 micron minimum) between your boat's fuel tank and outboard motor when using ethanol. Ethanol is known to allow moisture to be absorbed into boat fuel tanks and systems. Moisture in the fuel can cause corrosion of metallic fuel system components, starting and running complaints and require additional fuel system maintenance.

EMU27270

Ring Free Fuel Additive

Gasoline is a precise blend of many different substances, each chosen to give certain characteristics. Gasoline blends have been changing in recent years in response to concerns about pollution and resulting emissions regulations. One of the most obvious changes has been the elimination of lead from most fuels.

As gasoline has changed, the amount of additives such as aromatics and oxygenates has increased. These additives are important for the engines in passenger cars, but they can have detrimental effects in marine engines, because of increased deposits in the combustion chamber. When enough deposits collect, piston rings begin sticking. Performance drops and engine wear increases dramatically.

While many additives available may reduce deposits, Yamaha recommends the use of **Ring Free Fuel Additive**, available from your Yamaha dealer. **Ring Free Fuel Additive** has repeatedly proven its ability to clean combustion deposits from inside the engine, notably the critical piston-ring-land area, and fuel system components. Follow product labeling for use instructions.

EMU36880

Muddy or acidic water

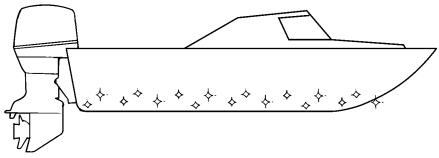
Yamaha strongly recommends that you have your dealer install the optional chromium-plated water pump kit if you use the outboard motor in muddy or acidic water conditions. However, depending on the model it might not be required.

EMU36330

Anti-fouling paint

A clean hull improves boat performance. The boat bottom should be kept as clean of marine growth as possible. If necessary, the boat bottom can be coated with an anti-fouling paint approved for your area to inhibit marine growth.

Do not use anti-fouling paint which includes copper or graphite. These paints can cause more rapid engine corrosion.



ZMU05176

EMU36341

Motor disposal requirements

Never illegally discard (dump) the motor. Yamaha recommends consulting the dealer about discarding the motor.

EMU36351

Emergency equipment

Keep the following items onboard in case there is trouble with the motor.

- A tool kit with assorted screwdrivers, pliers, wrenches (including metric sizes), and electrical tape.
- Waterproof flashlight with extra batteries.
- An extra engine shut-off cord (lanyard) with clip.
- Spare parts, such as an extra set of spark plugs.

Consult your Yamaha dealer for details.

EMU25221

Emission control information

EMU25230

North American models

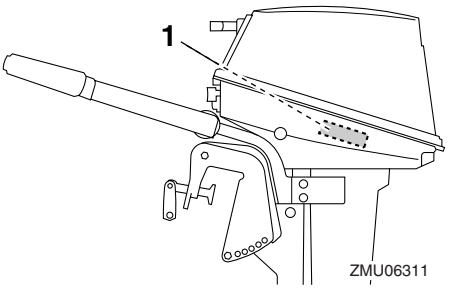
This engine conforms to U.S. Environmental Protection Agency (EPA) regulations for marine SI engines. See the label affixed to your

engine for details.

EMU30390

Approval label of emission control certificate

This label is attached to the bottom cowling.
Existing Technology; N/A



1. Approval label location

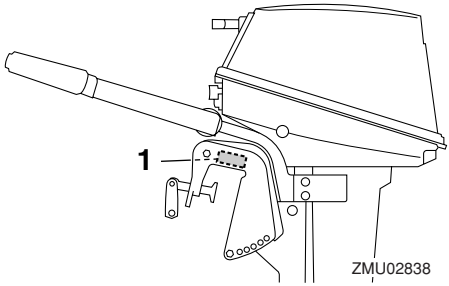
EMISSION CONTROL INFORMATION	
ENGINE FAMILY :	
THIS ENGINE CONFORMS TO [ ] U.S. EPA REGULATIONS FOR MARINE SI ENGINES. REFER TO THE OWNERS MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.	
FELs : g/kW-hr	IDLE SPEED : rpm IN NEUTRAL
SPARK PLUG :	SPARK PLUG GAP (mm) :
DISPLACEMENT : cm^3	FUEL : GASOLINE
ADVERTISED POWER : kW	VALVE LASH (mm) : IN : N/A EX : N/A
YAMAHA MOTOR CO.,LTD.	

ZMU05230

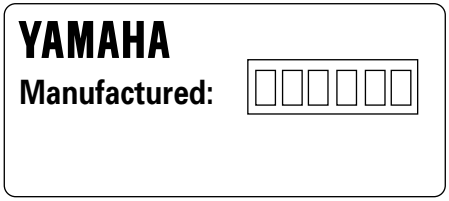
EMU25262

Manufactured date label

This label is attached to the clamp bracket or the swivel bracket.



1. Manufactured date label location



ZMU04346

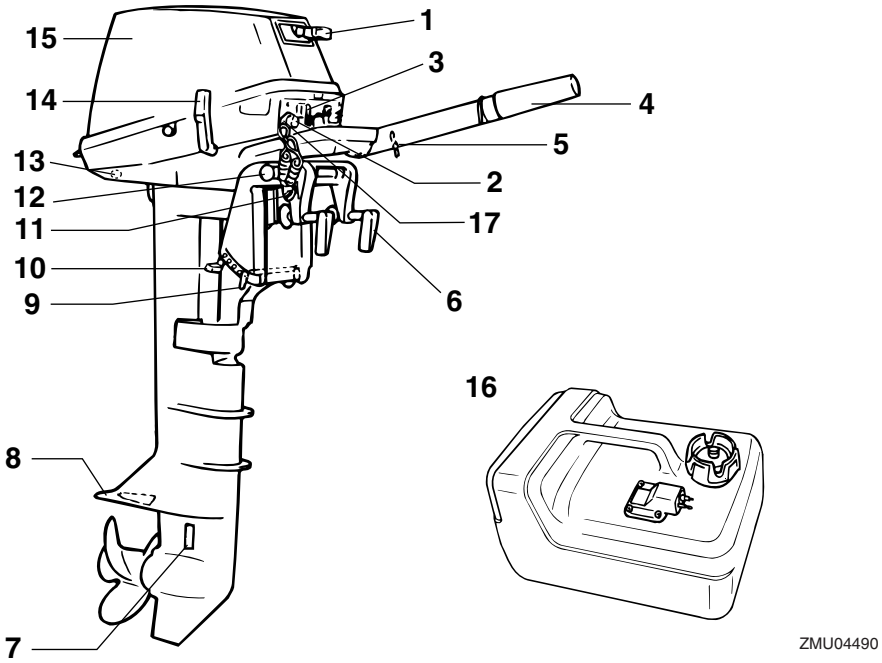
EMU2579M

Components diagram

TIP:

* May not be exactly as shown; also may not be included as standard equipment on all models.

8



1. Manual starter handle
2. Engine stop button/Engine shut-off switch
3. Choke knob
4. Throttle grip
5. Throttle friction adjuster
6. Clamp screw
7. Cooling water inlet
8. Anti-cavitation plate
9. Trim rod
10. Shallow water lever
11. Restraint cable attachment
12. Tilt support knob
13. Cooling water pilot hole
14. Gear shift lever
15. Top cowling
16. Fuel tank*
17. Clip

EMU25802

Fuel tank

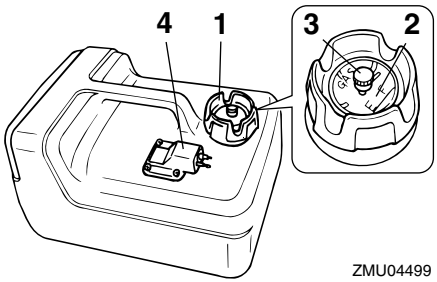
If your model was equipped with a portable fuel tank, its function is as follows.

EWM00020

⚠ WARNING

The fuel tank supplied with this engine is its dedicated fuel reservoir and must not be used as a fuel storage container. Commercial users should conform to relevant licensing or approval authority regula-

tions.



ZMU04499

1. Fuel tank cap
2. Fuel gauge
3. Air vent screw
4. Fuel joint

EMU25830

Fuel joint

This joint is used to connect the fuel line.

EMU25841

Fuel gauge

This gauge is located on either the fuel tank cap or on the fuel joint base. It shows the approximate amount of fuel remaining in the tank.

EMU25850

Fuel tank cap

This cap seals the fuel tank. When removed, the tank can be filled with fuel. To remove the cap, turn it counterclockwise.

EMU25860

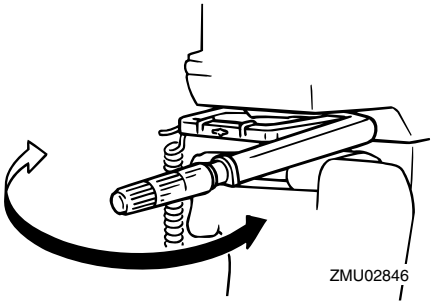
Air vent screw

This screw is on the fuel tank cap. To loosen the screw, turn it counterclockwise.

EMU25911

Tiller handle

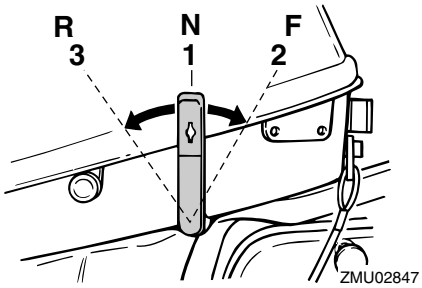
To change direction, move the tiller handle to the left or right as necessary.


ZMU02846

EMU25922

Gear shift lever

Pulling the gear shift lever towards you puts the engine in forward gear so that the boat moves ahead. Pushing the lever away from you puts the engine in reverse gear so that the boat moves astern.



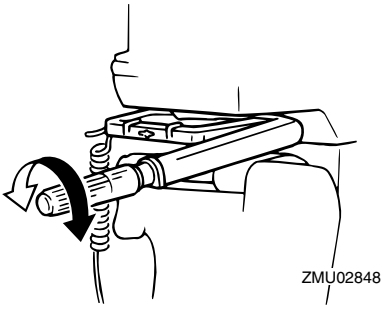
ZMU02847

1. Neutral “**N**”
2. Forward “**F**”
3. Reverse “**R**”

EMU25941

Throttle grip

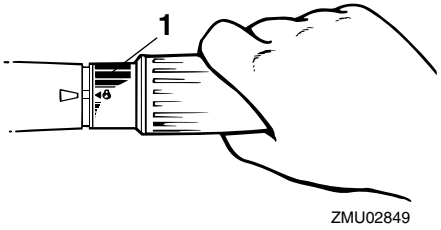
The throttle grip is on the tiller handle. Turn the grip counterclockwise to increase speed and clockwise to decrease speed.



EMU25961

Throttle indicator

The fuel consumption curve on the throttle indicator shows the relative amount of fuel consumed for each throttle position. Choose the setting that offers the best performance and fuel economy for the desired operation.



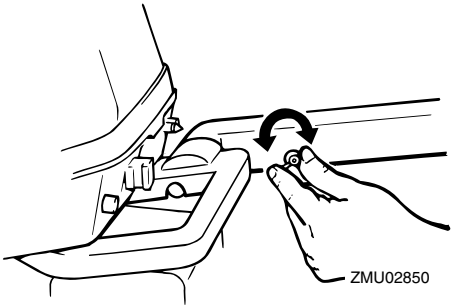
1. Throttle indicator

EMU25976

Throttle friction adjuster

A friction device provides adjustable resistance to movement of the throttle grip or the remote control lever, and can be set according to operator preference.

To increase resistance, turn the adjuster clockwise. To decrease resistance, turn the adjuster counterclockwise. **WARNING! Do not overtighten the friction adjuster. If there is too much resistance, it could be difficult to move the remote control lever or throttle grip, which could result in an accident.** [EWM00032]

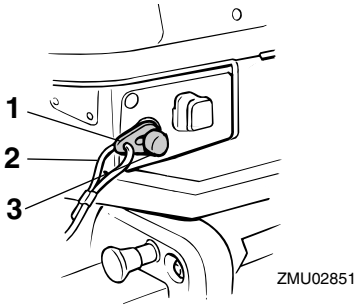


When constant speed is desired, tighten the adjuster to maintain the desired throttle setting.

EMU25994

Engine shut-off cord (lanyard) and clip

The clip must be attached to the engine shut-off switch for the engine to run. The cord should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the cord will pull out the clip, stopping ignition to the engine. This will prevent the boat from running away under power. **WARNING! Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning. Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.** [EWM00122]

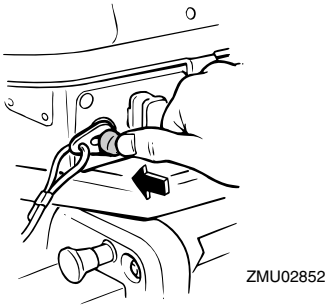


1. Clip
2. Cord
3. Engine shut-off switch

EMU26001

Engine stop button

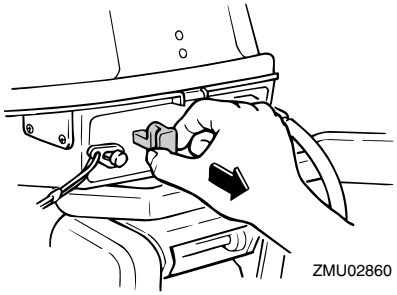
To open the ignition circuit and stop the engine, push this button.



EMU26011

Choke knob for pull type

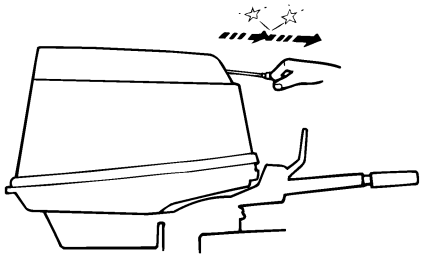
To supply the engine with the rich fuel mixture required to start, pull out this knob.



EMU26070

Manual starter handle

To start the engine, first gently pull the handle out until resistance is felt. From that position, then pull the handle straight out quickly to crank the engine.



EMU26122

Steering friction adjuster

A friction device provides adjustable resistance to the steering mechanism, and can be set according to operator preference. An adjusting screw or bolt is located on the swivel bracket.

To increase resistance, turn the adjuster clockwise.

To decrease resistance, turn the adjuster counterclockwise.

EWM00040

⚠ WARNING

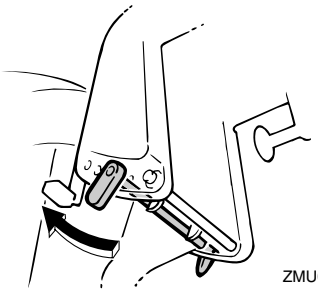
Do not overtighten the friction adjuster. If there is too much resistance, it could be

difficult to steer, which could result in an accident.

EMU26261

Trim rod (tilt pin)

The position of the trim rod determines the minimum trim angle of the outboard motor in relation to the transom.

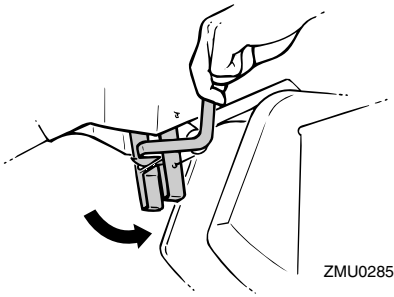


ZMU02853

EMU26280

Shallow water lever

Pushing this lever down will tilt the motor up partially to provide more clearance when operating in shallow water.

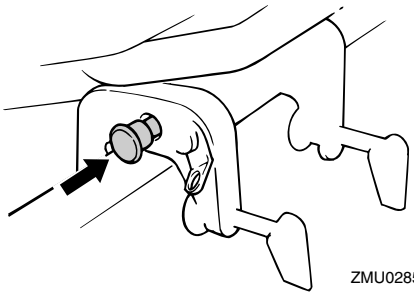


ZMU02854

EMU26321

Tilt support knob

To keep the outboard motor in the tilted up position, push the tilt support knob under the swivel bracket.



ZMU02855

ECM00660

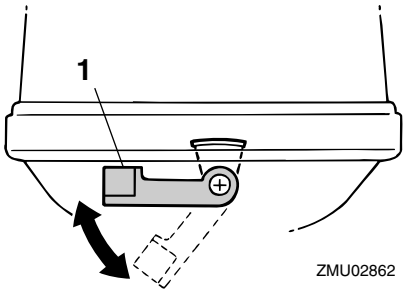
NOTICE

Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

EMU26373

Cowling lock lever(s) (turn type)

To remove the engine top cowling, turn the cowling lock lever(s) and lift off the cowling. When installing the cowling, check to be sure it fits properly in the rubber seal. Then lock the cowling again by returning the cowling lock lever(s) to the lock position.



ZMU02862

1. Cowling lock lever(s)

EMU26902

Installation

The information presented in this section is intended as reference only. It is not possible to provide complete instructions for every possible boat and motor combination. Proper mounting depends in part on experience and the specific boat and motor combination.

EWM01590

⚠ WARNING

- **Overpowering a boat could cause severe instability. Do not install an outboard motor with more horsepower than the maximum rating on the capacity plate of the boat. If the boat does not have a capacity plate, consult the boat manufacturer.**
- **Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards. For permanently mounted models, your dealer or other person experienced in proper rigging should mount the motor.**

EMU26911

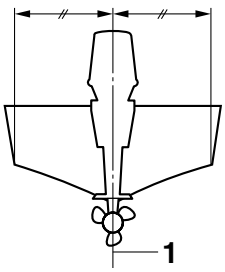
Mounting the outboard motor

EWM01720

⚠ WARNING

Your dealer or other person experienced in proper outboard motor mounting should show you how to mount your outboard motor.

The outboard motor should be mounted so that the boat is well balanced. Otherwise, the boat could be hard to steer. For single-engine boats, mount the outboard motor on the centerline (keel line) of the boat.



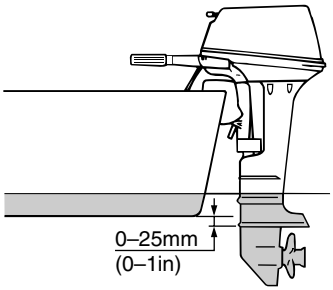
ZMU01760

1. Center line (keel line)

EMU26923

Mounting height

To run your boat at optimum efficiency, the water resistance (drag) of the boat and outboard motor must be made as little as possible. The mounting height of the outboard motor greatly affects the water resistance. If the mounting height is too high, cavitation tends to occur, thus reducing the propulsion; and if the propeller tips cut the air, the engine speed will rise abnormally and cause the engine to overheat. If the mounting height is too low, the water resistance will increase and thereby reduce engine efficiency. Mount the outboard motor so that the anti-cavitation plate is between the bottom of the boat and a level 25 mm (1 in) below it.



ZMU02011

ECM01631

NOTICE

- **Check that the idle hole stays high enough to keep out water getting inside engine even if the boat is in stationary with maximum load.**
- **Incorrect engine height or obstructions to the smooth flow of water (such as the design or condition of the boat, or accessories such as transom ladders or depth finder transducers) can create airborne water spray while the boat is cruising. If the motor is operated continuously in the presence of airborne water spray, enough water could enter the engine through the intake opening on the cowling to cause severe engine damage. Eliminate the cause of the airborne water spray.**

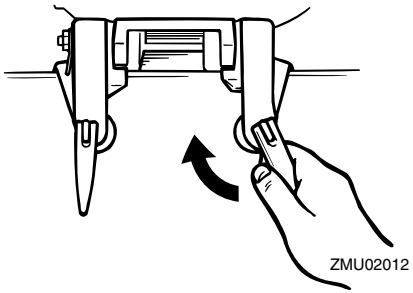
TIP:

- The optimum mounting height of the outboard motor is affected by the boat and motor combination and the desired use. Test runs at different heights can help determine the optimum mounting height. Consult your Yamaha dealer or boat manufacturer for further information on determining the proper mounting height.
- For instructions on setting the trim angle of the outboard motor, see page 36.

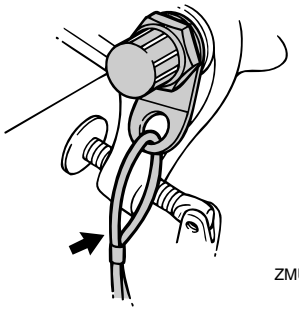
EMU26972

Clamping the outboard motor

1. Place the outboard motor on the transom so that it is positioned as close to the center as possible. Tighten the transom clamp screws evenly and securely. Occasionally check the clamp screws for tightness during operation of the outboard motor because they could become loose due to engine vibration. **WARNING! Loose clamp screws could allow the outboard motor to fall off or move on the transom. This could cause loss of control and serious injury. Make sure the transom screws are tightened securely. Occasionally check the screws for tightness during operation.** [EWM00641]


ZMU02012

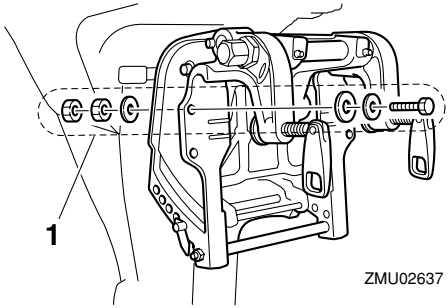
2. If the restraint cable attachment is equipped on your engine, a restraint cable or chain should be used. Attach one end to the restraint cable attachment and the other to a secure mounting point on the boat. Otherwise the engine could be completely lost if it accidentally falls off the transom.



ZMU02013

3. Secure the clamp bracket to the transom using the bolts provided with the outboard (if packed). For details, consult your Yamaha dealer. **WARNING! Avoid using bolts, nuts or washers other than those contained in the engine packaging. If used, they must be of at least the same quality of material and strength and must be tightened securely. After tightening, test run the engine and check their tightness.**

[EWM00651]



ZMU02637

1. Bolts

EMU36381

First-time operation

EMU30174

Breaking in engine

Your new engine requires a period of break-in to allow mating surfaces of moving parts to wear in evenly. Correct break-in will help ensure proper performance and longer engine life. ***NOTICE:*** **Failure to follow the break-in procedure could result in reduced engine life or even severe engine damage.** [ECM00801]

EMU27060

Gasoline and engine oil mixing chart (50:1)

	50:1			
	1 L (0.26 US gal, 0.22 Imp gal)	12 L (3.2 US gal, 2.6 Imp gal)	14 L (3.7 US gal, 3.1 Imp gal)	24 L (6.3 US gal, 5.3 Imp gal)
	0.02L (0.02 US qt, 0.02 Imp qt)	0.24 L (0.25 US qt, 0.21 Imp qt)	0.28 L (0.3US qt, 0.25 Imp qt)	0.48 L (0.51 US qt, 0.42Imp qt)

ZMU02442

1. : Gasoline
2. : Engine oil

ECM00150

NOTICE

Be sure to mix gasoline and oil completely, otherwise the engine may be damaged.

EMU27074

Procedure for pre-mixed models

Run the engine under load (in gear with a propeller installed) for 10 hours as follows.

1. First 10 minutes:
   Run the engine at the lowest possible speed. A fast idle in neutral is best.
2. Next 50 minutes:
   Do not exceed half throttle (approximately 3000 r/min). Vary engine speed occasionally. If you have an easy-planing boat, accelerate at full throttle onto plane, then immediately reduce the throttle to 3000 r/min or less.
3. Next two hours:
   Accelerate at full throttle onto plane, then reduce engine speed to three-quarter throttle (approximately 4000 r/min). Vary engine speed occasionally. Run at full throttle for one minute, then allow about 10 minutes of operation at three-quarter throttle or less to let the engine cool.
4. Remaining seven hours:
   Run the engine at any speed. However, avoid operating at full throttle for more than 5 minutes at a time.
5. After the first 10 hours:
   Operate the engine normally. Use the standard premix ratio of gasoline and oil. For details on mixing fuel and oil, see page 28.

EMU36400

Getting to know your boat

Different boats handle differently. Operate cautiously while you learn how your boat handles under different conditions and with different trim angles (see page 36).

EMU36412

Checks before starting engine

EWM01920

WARNING

If any item in the checks before starting engine is not working properly, have it inspected and repaired before operating the outboard motor. Otherwise an accident could occur.

ECM00120

NOTICE

Do not start the engine out of water. Overheating and serious engine damage can occur.

EMU37141

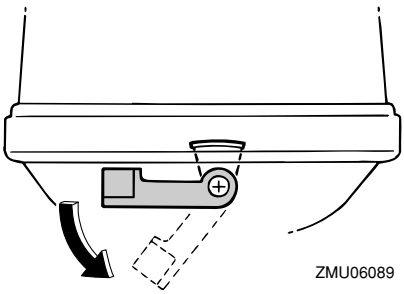
Fuel level

Be sure you have plenty of fuel for your trip. A good rule is to use 1/3 of your fuel to get to the destination, 1/3 to return, and to keep 1/3 as an emergency reserve. With the boat level on a trailer or in the water, check the fuel level. For fuel filling instructions, see page 28.

EMU36570

Remove cowling

For the following checks, remove the top cowling from the engine. To remove the engine top cowling, release the lock lever and lift off the cowling.



EMU36442

Fuel system

EWM00060

⚠ WARNING

Gasoline and its vapors are highly flammable and explosive. Keep away from sparks, cigarettes, flames, or other sources of ignition.

EWM00910

⚠ WARNING

Leaking fuel can result in fire or explosion.

- **Check for fuel leakage regularly.**
- **If any fuel leakage is found, the fuel system must be repaired by a qualified mechanic. Improper repairs can make the outboard unsafe to operate.**

EMU36451

Check for fuel leaks

- Check for fuel leaks or gasoline fumes in the boat.
- Check for fuel leakage from the fuel system.
- Check the fuel tank and fuel lines for cracks, swellings, or other damages.

EMU36891

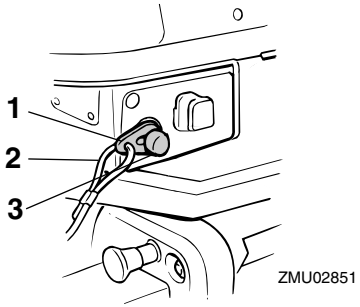
Controls

- Move the tiller handle fully to the left and right to make sure operation is smooth.
- Turn the throttle grip from the fully closed to the fully open position. Make sure that it turns smoothly and that it completely returns to the fully closed position.
- Look for loose or damaged connections of the throttle and shift cables.

EMU36482

Engine shut-off cord (lanyard)

Inspect the engine shut-off cord for damage, such as cuts, breaks, and wear.



1. Clip
2. Cord
3. Engine shut-off switch

EMU27120

Oil

- Check to be sure you have plenty of oil for your trip.

EMU27141

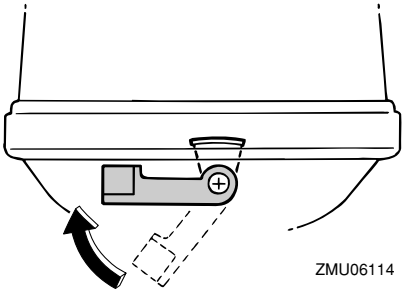
Engine

- Check the engine and engine mounting.
- Look for loose or damaged fasteners.
- Check the propeller for damage.

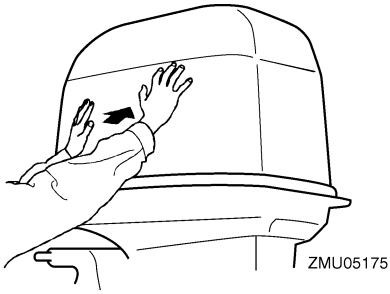
EMU36953

Install cowling

1. Be sure that a cowling lock lever is released.
2. Be sure that the rubber seal is seated all the way around the top cowling.
3. Place the top cowling on bottom cowling.
4. Check to be sure the rubber seal fits correctly all the way around the engine.
5. Move the lever to lock the cowling as shown. ***NOTICE:*** **If the cowling is not installed correctly, water spray under the cowling can damage the engine, or the cowling can blow off at high speeds.** [ECM01990]



After installing, check the fitting of the top cowling by pushing it with both hands. If the top cowling is loose, have it repaired by your Yamaha dealer.



EMU27234

Filling fuel and engine oil

EMU27247

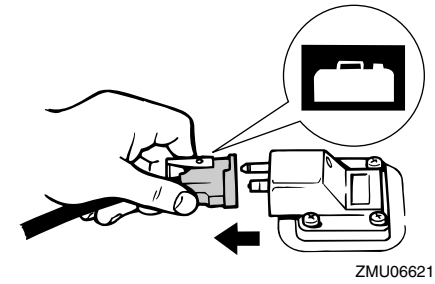
Filling fuel for portable tank

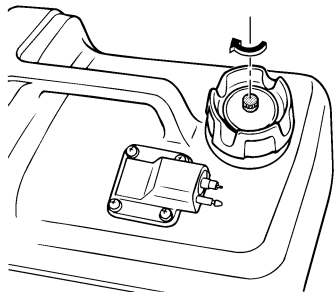
EWM01830

⚠ WARNING

- **Gasoline and its vapors are highly flammable and explosive. Always refuel according to this procedure to reduce the risk of fire and explosion.**
- **Gasoline is poisonous and can cause injury or death. Handle gasoline with care. Never siphon gasoline by mouth. If you should swallow some gasoline or inhale a lot of gasoline vapor, or get some gasoline in your eyes, see your doctor immediately. If gasoline spills on your skin, wash with soap and water. If gasoline spills on your clothing, change your clothes.**

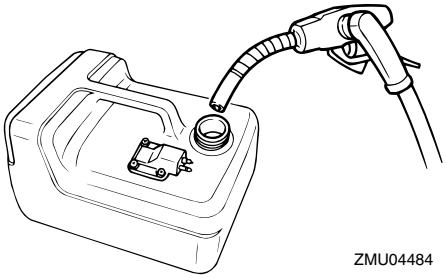
1. Be sure the engine is stopped.
2. Disconnect the fuel line from the fuel tank and tighten the air vent screw on the fuel tank cap.


ZMU06621


ZMU02250

3. Remove the portable tank from the boat.
4. Be sure you are in a well-ventilated outdoor area, either securely moored or trailered.
5. Do not smoke and keep away from sparks, flames, static electric discharge, or other sources of ignition.
6. If you use a portable container to store and dispense fuel, use only an approved GASOLINE container.
7. Touch the fuel nozzle to the filler opening or funnel to help prevent electrostatic sparks.
8. Fill the fuel tank, but do not overfill. Fuel can expand and overflow if the temperature increases.

Fuel tank capacity:
12 L (3.17 US gal, 2.64 Imp.gal)


ZMU04484

9. Tighten the filler cap securely.
10. Wipe up any spilled gasoline immediately with dry rags. Dispose rags properly according to local laws or regulations.

EMU27406

Gasoline and oil mixing (100:1)

ECM00811

NOTICE

- **Avoid using any oil other than the specified type.**
- **Use a thoroughly blended fuel-oil mixture.**
- **If the mixture is not thoroughly mixed, or if the mixing ratio is incorrect, the following problems could occur.**
- **Low oil ratio: Lack of oil could cause major engine trouble, such as piston seizure.**
- **High oil ratio: Too much oil could cause fouled spark plugs, smoky exhaust, and heavy carbon deposits.**

	Gasoline to engine oil ratio
Break-in period	See page 26
After break-in	100:1

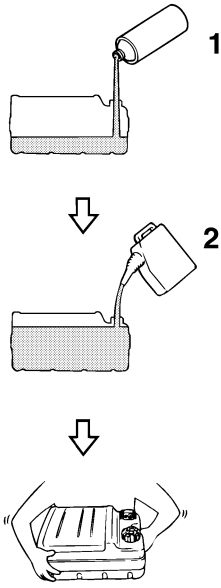
	100:1			
	1 L (0.26 US gal, 0.22 Imp gal)	12 L (3.2 US gal, 2.6 Imp gal)	14 L (3.7 US gal, 3.1 Imp gal)	24 L (6.3 US gal, 5.3 Imp gal)
	0.01 L (0.01 US qt, 0.01 Imp qt)	0.12 L (0.13 US qt, 0.11 Imp qt)	0.14 L (0.15 US qt, 0.12 Imp qt)	0.24 L (0.25 US qt, 0.21 Imp qt)

ZMU04910

1. : Gasoline
2. : Engine oil

If equipped with a portable fuel tank

1. Pour oil into the portable fuel tank, and then add gasoline.



ZMU02394

1. Engine oil
2. Gasoline

2. Replace the fuel tank cap and close tightly.
3. Shake the fuel tank to mix the fuel thoroughly.
4. Make sure that the oil and gasoline are mixed.

If equipped with a built-in fuel tank

1. Pour oil into a clean fuel can, and then add gasoline.
2. Replace the fuel can cap and close tightly.
3. Shake the fuel can to mix the fuel thoroughly.
4. Make sure that the oil and gasoline are mixed.
5. Pour the gasoline and oil mixture into the built-in fuel tank.

TIP:

If using a permanently installed tank, pour the oil gradually as the gasoline is being added to the tank.

EMU27451

Operating engine

EMU27466

Sending fuel (portable tank)

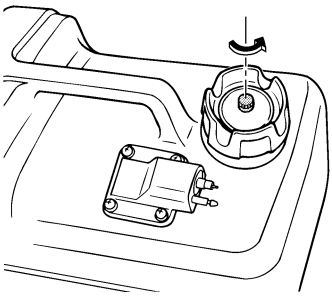
EWM00420

WARNING

- **Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.**
- **When the air vent screw is loosened, gasoline vapor will be released. Gasoline is highly flammable, and its vapors are flammable and explosive. Refrain from smoking, and keep away from open flames and sparks while loosening the air vent screw.**
- **This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which could cause brain damage or death when inhaled.**

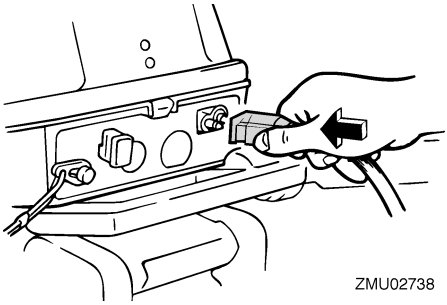
Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.

1. If there is an air vent screw on the fuel tank cap, loosen it 2 or 3 turns.

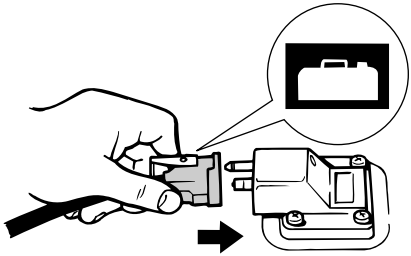


ZMU02237

2. If there is a fuel joint on the motor, firmly connect the fuel line to the joint. Then firmly connect the other end of the fuel line to the joint on the fuel tank.



ZMU02738

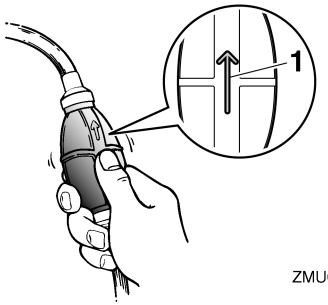


ZMU02024

TIP:

Wipe up any spilled gasoline immediately with dry rags. Dispose rags properly according to local laws or regulations.

3. Squeeze the primer pump, with the arrow pointing up, until you feel it become firm. During engine operation place the tank horizontally, otherwise fuel cannot be drawn from the fuel tank.



ZMU02025

1. Arrow

EMU27493

Starting engine

EWM01600

⚠ WARNING

Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.

EMU27508

Manual start models (tiller control)

EWM01840

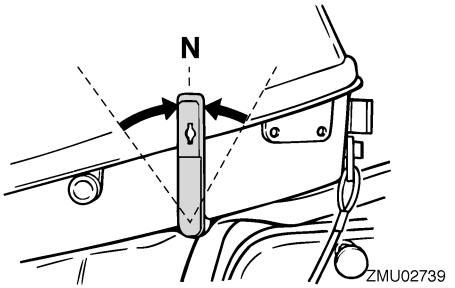
⚠ WARNING

- **Failure to attached engine shut-off cord could result in a runaway boat if operator is ejected. Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord**

where it could become entangled, preventing it from functioning.

- **Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**

1. Place the gear shift lever in neutral.

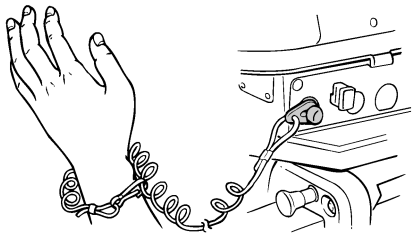


ZMU02739

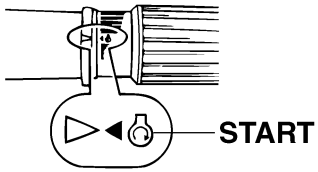
TIP:

The start-in-gear protection device prevents the engine from starting except when in neutral.

2. Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg. Then install the clip on the other end of the cord into the engine shut-off switch.

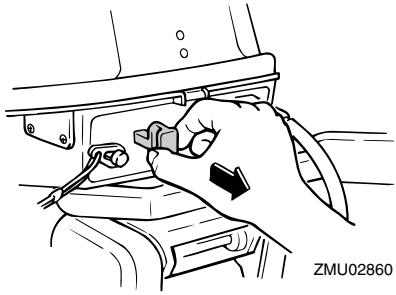

ZMU02740

3. Place the throttle grip in the "**START**" (start) position.



ZMU02446

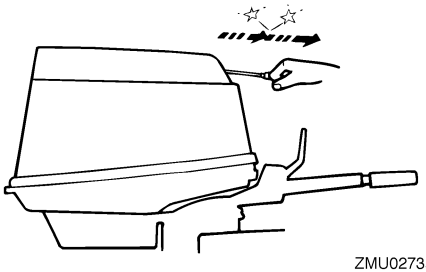
4. Pull out / turn the choke knob fully. After the engine starts, replace / return the knob to the home position.


ZMU02860

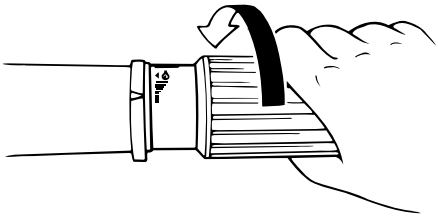
TIP:

- It is not necessary to use the choke when starting a warm engine.
- If the choke knob is left in the "**START**" (start) position while the engine is running, the engine will run poorly or stall.

5. Pull the manual starter handle slowly until you feel resistance. Then give a strong pull straight out to crank and start the engine. Repeat if necessary.


ZMU02735

6. After the engine starts, slowly return the manual starter handle to its original position before releasing it.
7. Slowly return the throttle grip to the fully closed position.


ZMU02030

TIP:

- When the engine is cold, it needs to be warmed up. For further information, see page 33.
- If the engine does not start on the first try, repeat the procedure. If the engine fails to start after 4 or 5 tries, open the throttle a small amount (between 1/8 and 1/4) and try again. Also if the engine is warm and fails to start, open the throttle a same amount and try to start the engine again. If the engine still fails to start, see page 55.

EMU36510

Checks after starting engine

EMU36520

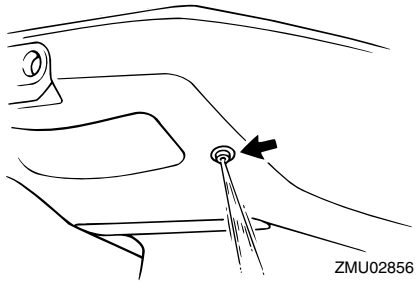
Cooling water

Check for a steady flow of water from the cooling water pilot hole. A continuous flow of water from the pilot hole shows that the water pump is pumping water through the cooling passages. If the cooling passages are frozen, it may take a while for water to start flowing out of the pilot hole.

ECM01810

NOTICE

If water is not flowing out of the pilot hole at all times while the engine is running, overheating and serious damage could occur. Stop the engine and check whether the cooling water inlet on the lower case or the cooling water pilot hole is blocked. Consult your Yamaha dealer if the problem cannot be located and corrected.


ZMU02856

Check that no water leaks from the joints between the exhaust cover, cylinder head, and body cylinder.

EMU27670

Warming up engine

EMU27683

Choke start models

After starting the engine, allow it to idle for 3 minutes to warm up. Failure to do so will

shorten engine life. Gradually return the choke knob to its home position as the engine warms up.

EMU36530

Checks after engine warm-up

EMU36540

Shifting

While tightly moored, and without applying throttle, confirm that the engine shifts smoothly into forward and reverse, and back to neutral.

EMU36970

Stop switches

- Press the engine stop button and make sure the engine stops.
- Confirm that removing the clip from the engine shut-off switch stops the engine.
- Confirm that the engine cannot be started with the clip removed from the engine shut-off switch.

EMU34550

Shifting

EWM00180

⚠ WARNING

Before shifting, make sure there are no swimmers or obstacles in the water near you.

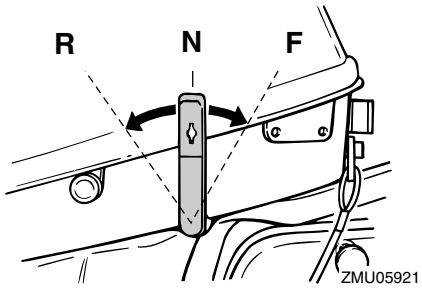
ECM01610

NOTICE

Warm up the engine before shifting into gear. Until the engine is warm, the idle speed may be higher than normal. High idle speed can prevent you from shifting back to neutral. If this occurs, stop the engine, shift to neutral, then restart the engine and allow it to warm up.

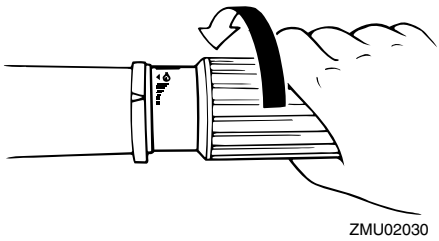
To shift out of neutral

1. Move the gear shift lever firmly and crisply forward (for forward gear) or backward (for reverse gear). Be sure to check that the tilt lock lever is in the lock/down position (if equipped) before operating in reverse.

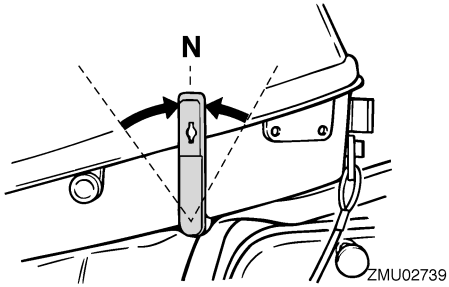


To shift from in gear (forward/reverse) to neutral

1. Close the throttle so that the engine slows to idle speed.



2. After the engine is at idle speed in gear move the gear shift lever firmly and crisply into the neutral position.



EMU31742

Stopping boat

EWM01510

⚠ WARNING

- **Do not use the reverse function to slow down or stop the boat as it could cause you to lose control, be ejected, or impact the steering wheel or other parts of the boat. This could increase the risk of serious injury. It could also damage the shift mechanism.**
- **Do not shift into reverse while traveling at planing speeds. Loss of control, boat swamping, or damage to the boat could occur.**

The boat is not equipped with a separate braking system. Water resistance stops it after the throttle lever is moved back to idle. The stopping distance varies depending on gross weight, water surface conditions, and wind direction.

EMU27821

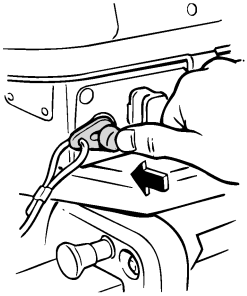
Stopping engine

Before stopping the engine, first let it cool off for a few minutes at idle or low speed. Stopping the engine immediately after operating at high speed is not recommended.

EMU27833

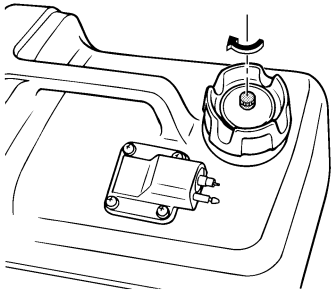
Procedure

1. Push and hold the engine stop button until the engine comes to a complete stop.



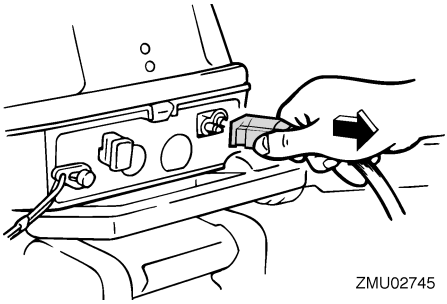
ZMU02744

2. After stopping the engine, tighten the air vent screw on the fuel tank cap and set the fuel cock lever or knob to the closed position, if equipped.



ZMU02250

3. Disconnect the fuel line if you are using an external fuel tank.



ZMU02745

TIP:

If the outboard motor is equipped with an engine shut-off cord, the engine can also be stopped by pulling the cord and removing the clip from the engine shut-off switch.

EMU27862

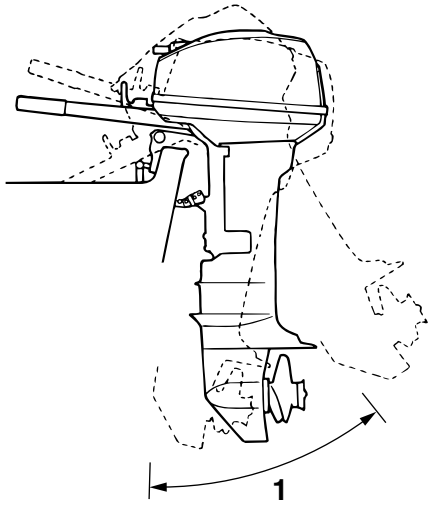
Trimming outboard motor

EWM00740

⚠ WARNING

Excessive trim for the operating conditions (either trim up or trim down) can cause boat instability and can make steering the boat more difficult. This increases the possibility of an accident. If the boat begins to feel unstable or is hard to steer, slow down and/or readjust the trim angle.

The trim angle of the outboard motor helps determine the position of the bow of the boat in the water. Correct trim angle will help improve performance and fuel economy while reducing strain on the engine. Correct trim angle depends upon the combination of boat, engine, and propeller. Correct trim is also affected by variables such as the load in the boat, sea conditions, and running speed.



ZMU02858

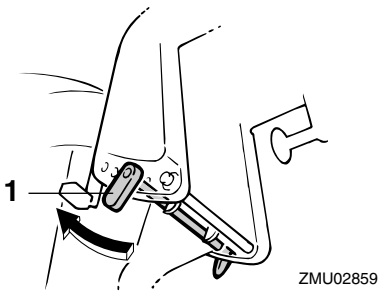
1. Trim operating angle

EMU27872

Adjusting trim angle for manual tilt models

There are 4 or 5 holes provided in the clamp bracket to adjust the outboard motor trim angle.

1. Stop the engine.
2. Tilt the outboard motor up, and then remove the trim rod from the clamp bracket.



1. Trim rod

3. Reposition the rod in the desired hole.

To raise the bow (“trim-out”), move the rod away from the transom.

To lower the bow (“trim-in”), move the rod toward the transom.

Make test runs with the trim set to different angles to find the position that works best for your boat and operating conditions.

EWM00400

⚠ WARNING

- **Stop the engine before adjusting the trim angle.**
- **Use care to avoid being pinched when removing or installing the rod.**
- **Use caution when trying a trim position for the first time. Increase speed gradually and watch for any signs of instability or control problems. Improper trim angle can cause loss of control.**

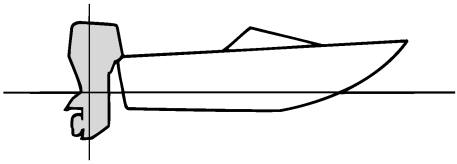
TIP:

The outboard motor trim angle can be changed approximately 4 degrees by shifting the trim rod one hole.

EMU27912

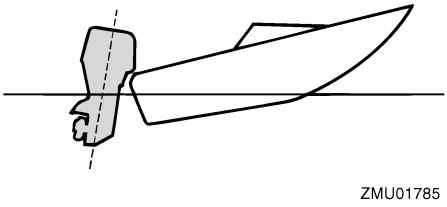
Adjusting boat trim

When the boat is on plane, a bow-up attitude results in less drag, greater stability and efficiency. This is generally when the keel line of the boat is up about 3 to 5 degrees. With the bow up, the boat may have a greater tendency to steer to one side or the other. Compensate for this as you steer. When the bow of the boat is down, it is easier to accelerate from a standing start onto plane.



Bow Up

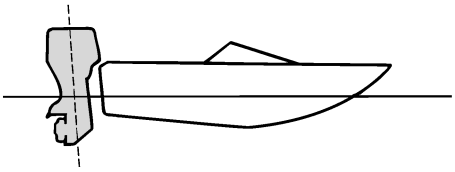
Too much trim-out puts the bow of the boat too high in the water. Performance and economy are decreased because the hull of the boat is pushing the water and there is more air drag. Excessive trim-out can also cause the propeller to ventilate, which reduces performance further, and the boat may “porpoise” (hop in the water), which could throw the operator and passengers overboard.



Bow Down

Too much trim-in causes the boat to “plow” through the water, decreasing fuel economy and making it hard to increase speed. Operating with excessive trim-in at higher speeds also makes the boat unstable. Resistance at

the bow is greatly increased, heightening the danger of “bow steering” and making operation difficult and dangerous.



ZMU01786

TIP:
Depending on the type of boat, the outboard motor trim angle may have little effect on the trim of the boat when operating.

EMU27922

Tilting up and down

If the engine will be stopped for some time or if the boat is moored in shallows, the outboard motor should be tilted up to protect the propeller and lower casing from damage by collision with obstructions, and also to reduce salt corrosion.

EWM00221

⚠ WARNING

Be sure all people are clear of the outboard motor when tilting up and down. Body parts can be crushed between the motor and the clamp bracket when the motor is trimmed or tilted.

EWM00230

⚠ WARNING

Leaking fuel is a fire hazard. Tighten the air vent screw and place the fuel cock in the closed position if the outboard motor will be tilted for more than a few minutes. Otherwise fuel may leak.

ECM00231

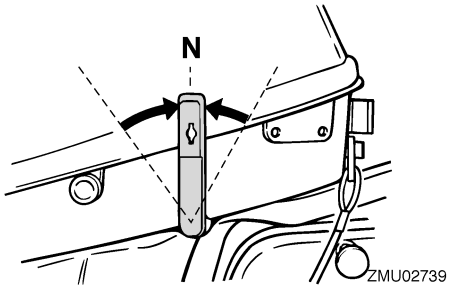
NOTICE

- **Before tilting the outboard motor, follow the procedure under “Stopping engine” in this chapter. Never tilt the outboard motor while the engine is running. Severe damage from overheating can result.**
- **Do not tilt up the engine by pushing the tiller handle because this could break the handle.**
- **Keep the power unit higher than the propeller at all times. Otherwise water could run into the cylinder and cause damage.**
- **The outboard motor cannot be tilted when in reverse or when the outboard motor is turned 180° (facing the rear).**

EMU32662

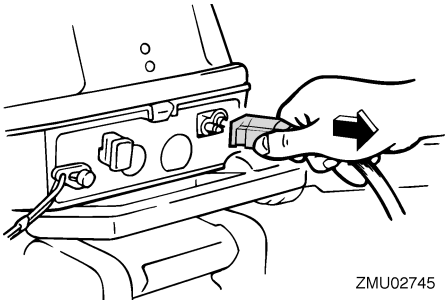
Procedure for tilting up (manual tilt models)

1. Place the gear shift lever in neutral.

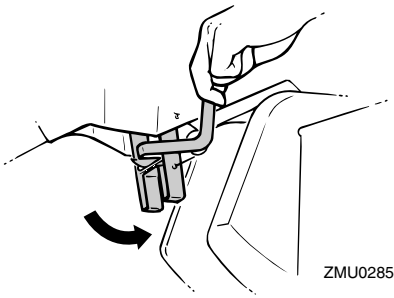


ZMU02739

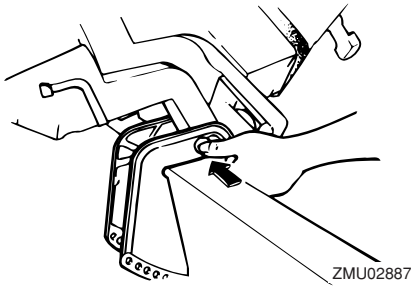
2. Disconnect the fuel line from the outboard motor.


ZMU02745

3. Place the tilt lock lever (if equipped) in the release/up position.
4. Pull up the shallow water lever (if equipped).


ZMU02854

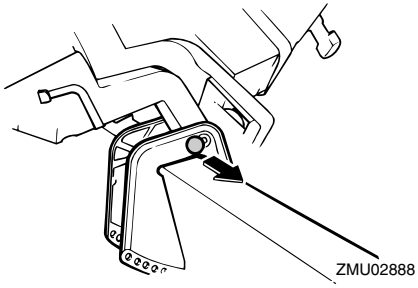
5. Hold the rear of the top cowling with one hand and tilt the engine up fully.
6. Push the tilt support knob into the clamp bracket. Or the tilt support bar will turn to the lock position automatically. ***NOTICE:*** **Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position. For more detailed information, see page 41.** [ECM01641]


ZMU02887

EMU28013

Procedure for tilting down (manual tilt models)

1. Slightly tilt the engine up.
2. On models equipped with a tilt support knob, pull it out.


ZMU02888

3. Slowly tilt the engine down.

EMU28061

Shallow water

EMU28073

Cruising in shallow water (manual tilt models)

EWM01781

⚠ WARNING

- **Run the boat at the lowest possible speed when using the shallow water cruising system. The tilt lock mechanism does not work while the shallow water cruising system is being used. Hitting an underwater obstacle could cause the outboard motor to lift out of**

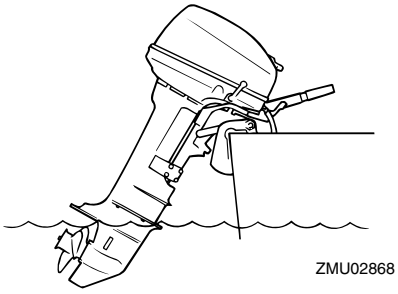
the water, resulting in loss of control.

- **Use extra care when operating in reverse. Too much reverse thrust can cause the outboard motor to lift out of the water, increasing the chance of accident and personal injury.**

ECM00260

NOTICE

Do not tilt the outboard motor up so that the cooling water inlet on the lower unit is above the surface of the water when setting up for and cruising in shallow water. Otherwise severe damage from overheating can result.

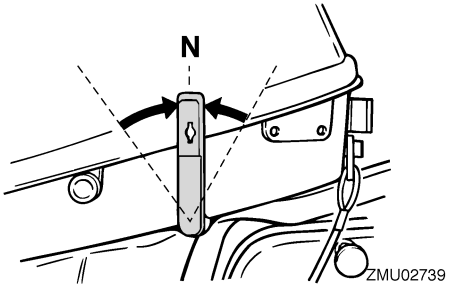


ZMU02868

EMU28110

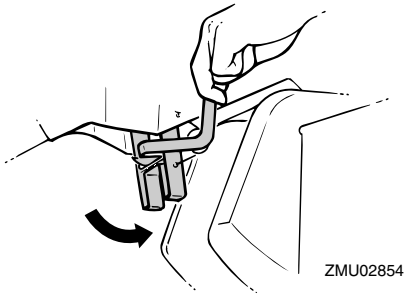
Procedure

1. Place the gear shift lever in neutral.



ZMU02739

2. Slightly tilt the outboard motor up. Pull up the shallow water lever.



ZMU02854

3. The shallow water lever will lock, supporting the outboard motor in a partially raised position.
4. When lowering the outboard motor, slightly tilt it up and push the shallow water lever down. Slowly lower the outboard motor to the normal position.

EMU28195

Cruising in other conditions

Cruising in salt water

After operating in salt water, flush the cooling water passages with fresh water to prevent them from becoming clogged. Also rinse the outside of the outboard motor with fresh water.

Cruising in muddy, turbid, or acidic water

Yamaha strongly recommends that you use the optional chromium-plated water pump kit (see page 16) if you use the outboard motor in acidic water or water with a lot of sediment in it, such as muddy or turbid (cloudy) water. After operating in such water, flush the cooling passages with fresh water to prevent corrosion. Also rinse the outside of the outboard motor with fresh water.

EMU28227

Transporting and storing outboard motor

EWM00693

⚠ WARNING

- **USE CARE when transporting fuel tank, whether in a boat or car.**
- **DO NOT fill fuel container to maximum capacity. Gasoline will expand considerably as it warms up and can build up pressure in the fuel container. This can cause fuel leakage and a potential fire hazard.**

EWM01860

⚠ WARNING

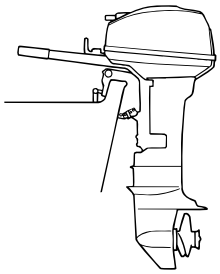
Leaking fuel is a fire hazard. When transporting and storing the outboard motor, close the fuel cock to prevent fuel from leaking. Never get under the engine while it is tilted. Severe injury could occur if the outboard motor accidentally falls.

ECM00660

NOTICE

Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

The outboard motor should be trailered and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilt position using a motor support device such as a transom saver bar. Consult your Yamaha dealer for further details.

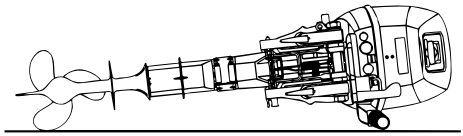


ZMU02870

EMU28236

Clamp screw mounting models

When transporting or storing the outboard motor while removed from a boat, keep the outboard motor in the attitude shown.



ZMU02869

TIP:

Place a towel or something similar under the outboard motor to protect it from damage.

EMU30272

Storing outboard motor

When storing your Yamaha outboard motor for prolonged periods of time (2 months or longer), several important procedures must be performed to prevent excessive damage. It is advisable to have your outboard motor serviced by an authorized Yamaha dealer prior to storage. However, you, the owner, with a minimum of tools, can perform the fol-

lowing procedures.

ECM01411

NOTICE

- **Do not place the outboard motor on its side before the cooling water has drained from it completely, otherwise water may enter the cylinder through the exhaust port and cause engine trouble.**
- **Store the outboard motor in a dry, well-ventilated place, not in direct sunlight.**

EMU28304

Procedure

EMU28376

Flushing in a test tank

ECM00300

NOTICE

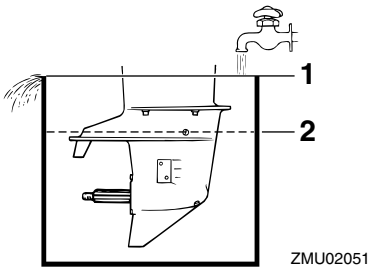
Do not run the engine without supplying it with cooling water. Either the engine water pump will be damaged or the engine will be damaged from overheating. Before starting the engine, be sure to supply water to the cooling water passages.

1. Wash the outboard motor body using fresh water. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01840] For further information, see page 43.
2. Fill the fuel tank with fresh fuel and add one ounce of "Yamaha Fuel Conditioner and Stabilizer" to each gallon of fuel.

TIP:

The use of "Yamaha Fuel Conditioner and Stabilizer" eliminates the need to drain the fuel system. Consult your Yamaha dealer or other qualified mechanic if the fuel system is to be drained instead.

3. Remove the engine top cowling and silencer cover.
4. Install the outboard motor on the test tank.



1. Water surface
2. Lowest water level

5. Fill the tank with fresh water to above the level of the anti-cavitation plate. ***NOTICE:*** **If the fresh water level is below the level of the anti-cavitation plate, or if the water supply is insufficient, engine seizure may occur.** [ECM00291]
6. Cooling system flushing is essential to prevent the cooling system from clogging up with salt, sand, or dirt. In addition, fogging of the engine is mandatory to prevent excessive engine damage due to rust. Perform the flushing and fogging at the same time. **WARNING! Do not touch or remove electrical parts when starting or during operation. Keep hands, hair, and clothes away from the flywheel and other rotating parts while the engine is running.** [EWM00091]
7. Run the engine at a fast idle for 10–15 minutes in neutral position.
8. Just prior to turning off the engine, quickly spray "Yamaha Stor-Rite Engine Fogging Oil" alternately into each carburetor or the fogging hole of the silencer cover, if equipped. When properly done, the engine will smoke excessively and almost stall.

9. Remove the outboard motor from the test tank.
10. Drain the cooling water completely out of the motor. Clean the body thoroughly.
11. Install the silencer cover/cap and top cowling.

EMU28402

Lubrication

1. Install the spark plug(s) and torque to proper specification. For information on spark plug installation, see page 48.
2. Change the gear oil. For instructions, see page 51. Inspect the oil for the presence of water that indicates a leaky seal. Seal replacement should be performed by an authorized Yamaha dealer prior to use.
3. Grease all grease fittings. For further details, see page 48.

TIP:

For long-term storage, fogging the engine with oil is recommended. Contact your Yamaha dealer for information about fogging oil and procedures for your engine.

EMU28423

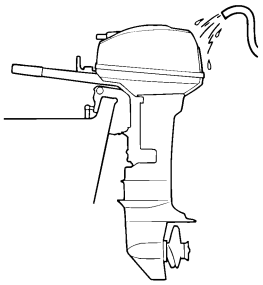
Cleaning and anticorrosion measures

1. Wash down the exterior of the outboard motor with fresh water and dry off completely. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01840]
2. Spray the outboard motor exterior with “Yamaha Silicone Protectant”.
3. Wax the cowling with a non-abrasive wax such as “Yamaha Silicone Wax”.

EMU28451

Cleaning the outboard motor

After use, wash the exterior of the outboard motor with fresh water. Flush the cooling system with fresh water.



ZMU02459

EMU28460

Checking painted surface of motor

Check the motor for scratches, nicks, or flaking paint. Areas with damaged paint are more likely to corrode. If necessary, clean and paint the areas. A touch-up paint is available from your Yamaha dealer.

EMU37081

Periodic maintenance

EWM01981

⚠ WARNING

These procedures require mechanical skills, tools, and supplies. If you do not have the proper skills, tools, or supplies to perform a maintenance procedure, have a Yamaha dealer or other qualified mechanic do the work.

The procedures involve disassembling the motor and exposing dangerous parts. To reduce the risk of injury from moving, hot, or electrical parts:

- **Turn off the engine and keep engine shut-off cord (lanyard) with you when you perform maintenance unless otherwise specified.**
- **Allow the engine to cool before handling hot parts or fluids.**
- **Always completely reassemble the motor before operation.**

Maintenance, replacement, or repair of the emission control devices and sys-

tems may be performed by any marine engine repair establishment or individual. All warranty repairs, however, including those to the emission control system, must be performed by an authorized Yamaha marine dealership.

A service manual is available for purchase through your Yamaha dealer for owners who have the mechanical skills, tools, and other equipment necessary to perform maintenance not covered by this owner's manual.

EMU28511

Replacement parts

If replacement parts are necessary, use only genuine Yamaha parts or parts of equivalent design and quality. Any part of inferior quality may malfunction, and the resulting loss of control could endanger the operator and passengers. Yamaha genuine parts and accessories are available from your Yamaha dealer.

EMU35520

Maintenance interval guidelines

The service intervals provided in the Maintenance Chart were developed based upon "typical" use that includes operating at varied speeds, with sufficient time for engine warm up and cool-down, a medium to light load, and an average cruising speed near the 3000 to 4000 rpm range. As with any engine, however, if your normal operating conditions are different, you should consider service more often than shown, especially how often you change your engine and gear oil. Examples might include extended wide-open-throttle use or long periods of trolling or idling, carrying heavy loads, or frequent starting and stopping or shifting. More frequent maintenance will often pay off many times over in increased engine life and greater owner satisfaction. Consult your Yamaha dealer for additional maintenance recommendations.

EMU34445

Maintenance chart 1

TIP:

- Refer to the sections in this chapter for explanations of each owner-specific action.
- The maintenance cycle on these charts assume usage of 100 hours per year and regular flushing of the cooling water passages. Maintenance frequency should be adjusted when operating the engine under adverse conditions such as extended trolling.
- Disassembly or repairs may be necessary depending on the outcome of maintenance checks.
- Expendable or consumable parts and lubricants will lose their effectiveness over time and through normal usage regardless of the warranty period.
- When operating in salt water, muddy, other turbid (cloudy), acidic water, the engine should be flushed with clean water after each use.

The "●" symbol indicates the check-ups which you may carry out yourself.
The "○" symbol indicates work to be carried out by your Yamaha dealer.

Item	Actions	Initial	Every		
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)
Anode(s) (external)	Inspection or replacement as necessary		●/○		
Anode(s) (cylinder head, thermostat cover)	Inspection or replacement as necessary				○
Anodes (exhaust cover, cooling water passage cover, Rectifier Regulator cover)	Replacement				○
Cooling water leakage	Inspection or replacement as necessary	○	○		
Cowling lock lever	Inspection		●/○		
Engine starting condition/noise	Inspection	●/○	●/○		
Engine idling speed/ noise	Inspection	●/○	●/○		
Fuel filter (disposal type)	Replacement		○		
Fuel line(High pressure)	Inspection	●	●		
Fuel line(High pressure)	Inspection or replacement as necessary	○	○		
Fuel line(Low pressure)	Inspection	●	●		

Item	Actions	Initial	Every		
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)
Fuel line(Low pressure)	Inspection or replacement as necessary	○	○		
Fuel pump	Inspection or replacement as necessary			○	
Fuel/engine oil leakage	Inspection	○	○		
Gear oil	Replacement	●/○	●/○		
Greasing points	Greasing	●/○	●/○		
Impeller/water pump housing	Inspection or replacement as necessary		○		
Impeller/water pump housing	Replacement			○	
Propeller/propeller nut/cotter pin	Inspection or replacement as necessary	●/○	●/○		
Shift link/shift cable	Inspection, adjustment or replacement as necessary	○	○		
Spark plug(s)	Inspection or replacement as necessary		●/○		
Spark plug caps/spark plug wires	Inspection or replacement as necessary	○	○		
Water from the cooling water pilot hole	Inspection	●/○	●/○		
Throttle link/throttle cable/throttle pick-up timing	Inspection, adjustment or replacement as necessary	○	○		
Thermostat	Inspection or replacement as necessary		○		
Water inlet	Inspection	●/○	●/○		
Main switch/stop switch/choke switch	Inspection or replacement as necessary	○	○		
Wire harness connections/wire coupler connections	Inspection or replacement as necessary	○	○		
(Yamaha) Fuel tank	Inspection and cleaning as necessary		○		

EMU34451

Maintenance chart 2

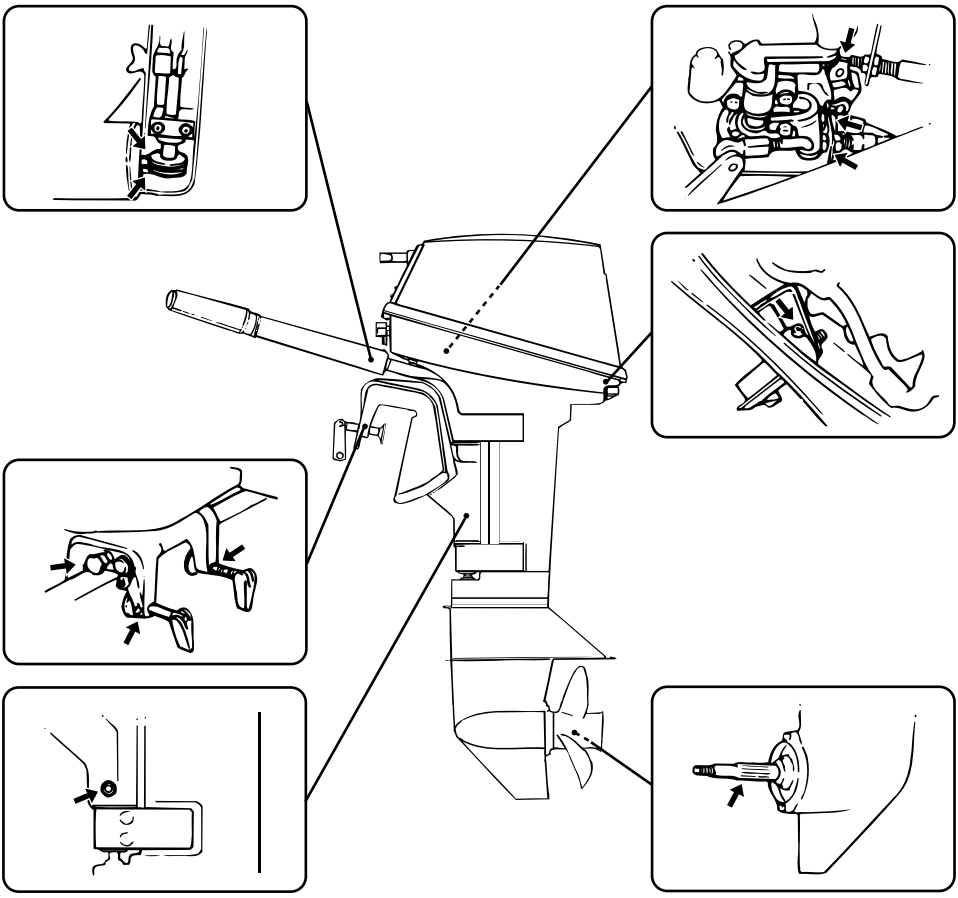
Item	Actions	Every
		1000 hours
Exhaust guide/exhaust manifold	Inspection or replacement as necessary	○

EMU28932

Greasing

Yamaha marine grease (Water resistant grease)

8



ZMU02872

EMU28956

Cleaning and adjusting spark plug

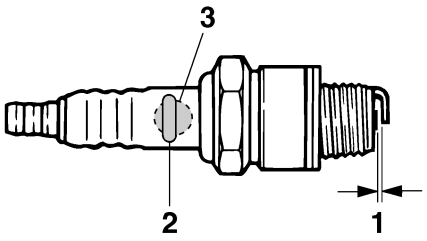
The spark plug is an important engine component and is easy to inspect. The condition of the spark plug can indicate something about the condition of the engine. For example, if the center electrode porcelain is very white, this could indicate an intake air leak or carburetion problem in that cylinder. Do not attempt to diagnose any problems yourself. Instead, take the outboard motor to a Yamaha dealer. You should periodically remove and inspect the spark plug because heat and deposits will cause the spark plug to slowly break down and erode.

1. Remove the spark plug caps from the spark plugs.

2. Remove the spark plug. If electrode erosion becomes excessive, or if carbon and other deposits are excessive, you should replace the spark plug with another of the correct type. **WARNING! When removing or installing a spark plug, be careful not to damage the insulator. A damaged insulator could allow external sparks, which could lead to explosion or fire.** [EWM00561]

Standard spark plug:
B7HS-10

3. Be sure to use the specified spark plug, otherwise the engine may not operate properly. Before fitting the spark plug, measure the electrode gap with a wire thickness gauge; replace it if out of specification.



ZMU02179

1. Spark plug gap
2. Spark plug part number
3. Spark plug I.D. mark (NGK)

Spark plug gap:
0.9–1.0 mm (0.035–0.039 in)

4. When fitting the plug, wipe off any dirt from the threads, and then screw it in to the correct torque.

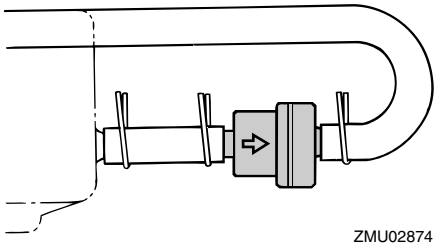
Spark plug torque:
25.0 Nm (2.55 kgf-m, 18.4 ft-lb)

TIP:
If a torque-wrench is not available when you are fitting a spark plug, a good estimate of the correct torque is 1/4 to 1/2 a turn past finger-tight. Have the spark plug adjusted to the correct torque as soon as possible with a torque-wrench.

EMU28990

Checking fuel filter

Check the fuel filter periodically. The fuel filter is a one piece, disposable type. If foreign matter is found in the filter, replace it. For replacement of the fuel filter, consult your Yamaha dealer.



ZMU02874

EMU29043

Inspecting idling speed

EWM00451

⚠ WARNING

- **Do not touch or remove electrical parts when starting or during operation.**
- **Keep hands, hair, and clothes away from the flywheel and other rotating parts while the engine is running.**

ECM00490

NOTICE

This procedure must be performed while

the outboard motor is in the water. A flushing attachment or test tank can be used.

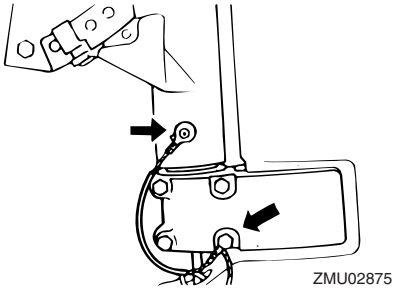
If the boat is not equipped with a tachometer for the outboard motor, use a diagnostic tachometer for this procedure. Results may vary depending on whether testing is conducted with the flushing attachment, in a test tank, or with the outboard motor in the water.

1. Start the engine and allow it to warm up fully in neutral until it is running smoothly.
2. Once the engine has warmed up, verify whether the idle speed is set to specification. For idle speed specifications, see page 13. If you have difficulty verifying the idle speed, or the idle speed requires adjustment, consult a Yamaha dealer or other qualified mechanic.

EMU29113

Checking wiring and connectors

- Check that each connector is engaged securely.
- Check that each ground lead is properly secured.



ZMU02875

EMU32112

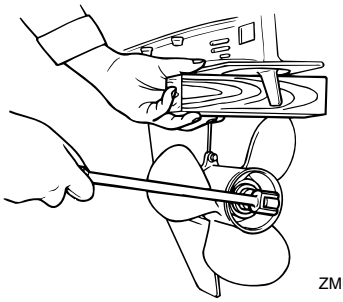
Checking propeller

EWM01881

WARNING

You could be seriously injured if the engine accidentally starts when you are near the propeller. Before inspecting, removing, or installing the propeller, place the shift control in neutral, turn the main switch to "OFF" (off) and remove the key, and remove the clip from the engine shut-off switch. Turn off the battery cut-off switch if your boat has one.

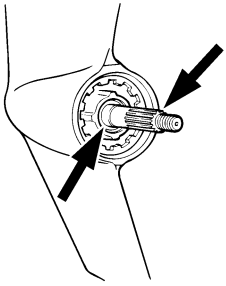
Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Put a wood block between the anti-cavitation plate and the propeller to prevent the propeller from turning.



ZMU01897

Checkpoints

- Check each of the propeller blades for erosion from cavitation or ventilation, or other damage.
- Check the propeller shaft for damage.
- Check the splines for wear or damage.
- Check for fish line tangled around the propeller shaft.



ZMU01803

- Check the propeller shaft oil seal for damage.

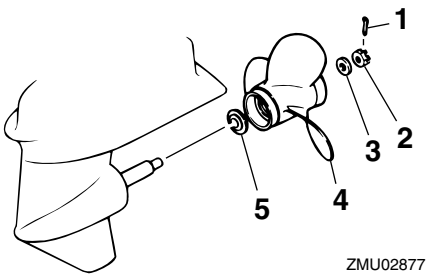
EMU30662

Removing propeller

EMU29197

Spline models

1. Straighten the cotter pin and pull it out using a pair of pliers.
2. Remove the propeller nut, washer, and spacer (if equipped). **WARNING! Do not use your hand to hold the propeller when loosening the propeller nut.** [EWM01890]



ZMU02877

1. Cotter pin
2. Propeller nut
3. Washer
4. Propeller
5. Thrust washer

3. Remove the propeller, washer (if equipped), and thrust washer.

EMU30672

Installing propeller

EMU29233

Spline models

ECM00500

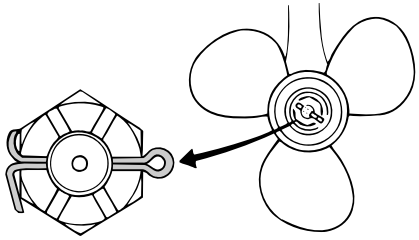
NOTICE

Be sure to use a new cotter pin and bend the ends over securely. Otherwise the propeller could come off during operation and be lost.

1. Apply Yamaha marine grease or a corrosion resistant grease to the propeller shaft.
2. Install the spacer (if equipped), thrust washer, washer (if equipped), and propeller on the propeller shaft. ***NOTICE:*** **Be sure to install the thrust washer before installing the propeller, otherwise the lower case and propeller boss could be damaged.** [ECM01880]
3. Install the spacer (if equipped) and the washer. Tighten the propeller nut to the specified torque.

Propeller nut tightening torque:
17.0 Nm (1.73 kgf-m, 12.5 ft-lb)

4. Align the propeller nut with the propeller shaft hole. Insert a new cotter pin in the hole and bend the cotter pin ends. ***NOTICE:*** **Do not reuse the cotter pin installed. Otherwise the propeller can come off during operation.** [ECM01890]



ZMU02063

TIP:

If the propeller nut does not align with the propeller shaft hole after tightening to the specified torque, tighten the nut further to align it with the hole.

EMU29287

Changing gear oil

EWM00800

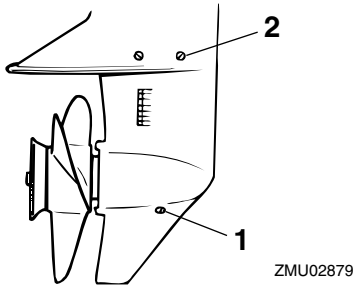
⚠ WARNING

- **Be sure the outboard motor is securely**

fastened to the transom or a stable stand. You could be severely injured if the outboard motor falls on you.

- **Never get under the lower unit while it is tilted, even when the tilt support lever or knob is locked. Severe injury could occur if the outboard motor accidentally falls.**

1. Tilt the outboard motor so that the gear oil drain screw is at the lowest point possible.
2. Place a suitable container under the gear case.
3. Remove the gear oil drain screw and gasket. ***NOTICE:*** **If there is an excessive quantity of metal particles on the magnetic gear oil drain screw, this can indicate lower unit problem. Consult your Yamaha dealer.** [ECM01900]



ZMU02879

1. Gear oil drain screw
2. Oil level plug

TIP:

- If a magnetic gear oil drain screw is equipped, remove all metal particles from the screw before installing it.
- Always use new gaskets. Do not reuse the removed gaskets.

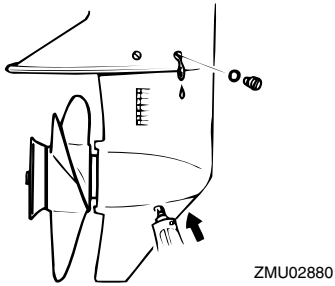
4. Remove the oil level plug and gasket to allow the oil to drain completely. ***NOTICE:*** **Inspect the used oil after it has been drained. If the oil is milky, water is getting into the gear case which can cause gear damage. Consult a Yamaha dealer for repair of the lower unit seals.** [ECM00711]

TIP:

For disposal of used oil, consult your Yamaha dealer.

5. Put the outboard motor in a vertical position. Using a flexible or pressurized filling device, inject the gear oil into the gear oil drain screw hole.

Recommended gear oil: Hypoid gear oil SAE#90 Gear oil quantity: 0.160 L (0.169 US qt, 0.141 Imp.qt)


ZMU02880

6. Put a new gasket on the oil level plug. When the oil begins to flow out of the oil level plug hole, insert and tighten the oil level plug.

Tightening torque: 9 Nm (0.9 kgf-m, 6.6 ft-lb)

7. Put a new gasket on the gear oil drain screw. Insert and tighten the gear oil

drain screw.

Tightening torque:
9 Nm (0.9 kgf-m, 6.6 ft-lb)

EMU29302

Cleaning fuel tank

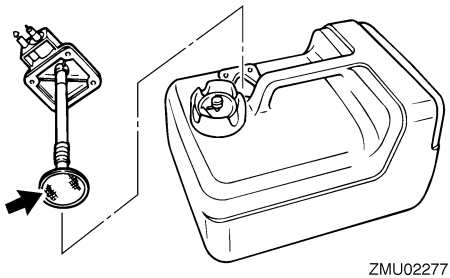
EWM00920

⚠ WARNING

Gasoline is highly flammable, and its vapors are flammable and explosive.

- **If you have any question about properly doing this procedure, consult your Yamaha dealer.**
- **Keep away from sparks, cigarettes, flames, or other sources of ignition when cleaning the fuel tank.**
- **Remove the fuel tank from the boat before cleaning it. Work only outdoors in an area with good ventilation.**
- **Wipe up any spilled fuel immediately.**
- **Reassemble the fuel tank carefully. Improper assembly can result in a fuel leak, which could result in a fire or explosion hazard.**
- **Dispose of old gasoline according to local regulations.**

1. Empty the fuel tank into an approved container.
2. Pour a small amount of suitable solvent into the tank. Install the cap and shake the tank. Drain the solvent completely.
3. Remove the screws holding the fuel joint assembly. Pull the assembly out of the tank.



ZMU02277

4. Clean the filter (located on the end of the suction pipe) in a suitable cleaning solvent. Allow the filter to dry.
5. Replace the gasket with a new one. Reinstall the fuel joint assembly and tighten the screws firmly.

EMU29313

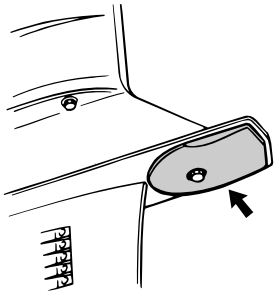
Inspecting and replacing anode(s)

Yamaha outboard motors are protected from corrosion by sacrificial anodes. Inspect the external anodes periodically. Remove scales from the surfaces of the anodes. Consult a Yamaha dealer for replacement of external anodes.

ECM00720

NOTICE

Do not paint anodes, as this would render them ineffective.



ZMU02881

TIP:

Inspect ground leads attached to external

anodes on equipped models. Consult a Yamaha dealer for inspection and replacement of internal anodes attached to the power unit.

EMU29427

Troubleshooting

A problem in the fuel, compression, or ignition systems can cause poor starting, loss of power, or other problems. This section describes basic checks and possible remedies, and covers all Yamaha outboard motors. Therefore some items may not apply to your model.
If your outboard motor requires repair, bring it to your Yamaha dealer.
If the engine trouble-alert indicator is flashing, consult your Yamaha dealer.

Starter will not operate.
Q. Is battery capacity weak or low?
A. Check battery condition. Use battery of recommended capacity.

Q. Are battery connections loose or corroded?
A. Tighten battery cables and clean battery terminals.

Q. Is fuse for electric start relay or electric circuit blown?
A. Check for cause of electric overload and repair. Replace fuse with one of correct amperage.

Q. Are starter components faulty?
A. Have serviced by a Yamaha dealer.

Q. Is shift lever in gear?
A. Shift to neutral.

Engine will not start (starter operates).
Q. Is fuel tank empty?
A. Fill tank with clean, fresh fuel.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Is starting procedure incorrect?
A. See page 31.

Q. Has fuel pump malfunctioned?
A. Have serviced by a Yamaha dealer.

Q. Are spark plug(s) fouled or of incorrect type?
A. Inspect spark plug(s). Clean or replace with recommended type.

Q. Are spark plug cap(s) fitted incorrectly?
A. Check and re-fit cap(s).

Q. Is ignition wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Are ignition parts faulty?
A. Have serviced by a Yamaha dealer.

Q. Is engine shut-off cord (lanyard) not attached?
A. Attach cord.

Q. Are engine inner parts damaged?
A. Have serviced by a Yamaha dealer.

Engine idles irregularly or stalls.
Q. Are spark plug(s) fouled or of incorrect type?
A. Inspect spark plug(s). Clean or replace with recommended type.

Q. Is fuel system obstructed?
A. Check for pinched or kinked fuel line or other obstructions in fuel system.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Have ignition parts failed?
A. Have serviced by a Yamaha dealer.

Q. Has alert system activated?
A. Find and correct cause of alert.

Q. Is spark plug gap incorrect?
A. Inspect and adjust as specified.

Q. Is ignition wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Is specified engine oil not being used?
A. Check and replace oil as specified.

Q. Is thermostat faulty or clogged?
A. Have serviced by a Yamaha dealer.

Q. Are carburetor adjustments incorrect?
A. Have serviced by a Yamaha dealer.

Q. Is fuel pump damaged?
A. Have serviced by a Yamaha dealer.

Q. Is air vent screw on fuel tank closed?
A. Open air vent screw.

Q. Is choke knob pulled out?
A. Return to home position.

Q. Is motor angle too high?
A. Return to normal operating position.

Q. Is carburetor clogged?
A. Have serviced by a Yamaha dealer.

Q. Is fuel joint connection incorrect?
A. Connect correctly.

Q. Is throttle valve adjustment incorrect?
A. Have serviced by a Yamaha dealer.

Q. Is battery cable disconnected?
A. Connect securely.

Alert buzzer sounds or indicator lights.
Q. Is cooling system clogged?
A. Check water intake for restriction.

Q. Is engine oil level low?
A. Fill oil tank with specified engine oil.

Q. Is heat range of spark plug incorrect?
A. Inspect spark plug and replace it with recommended type.

Q. Is specified engine oil not being used?
A. Check and replace oil with specified type.

Q. Is engine oil contaminated or deteriorated?
A. Replace oil with fresh, specified type.

Q. Is oil filter clogged?
A. Have serviced by a Yamaha dealer.

Q. Has oil feed/injection pump malfunctioned?
A. Have serviced by a Yamaha dealer.

Q. Is load on boat improperly distributed?
A. Distribute load to place boat on an even plane.

Q. Is water pump or thermostat faulty?
A. Have serviced by a Yamaha dealer.

Q. Is there excess water in fuel filter cup?
A. Drain filter cup.

Engine power loss.
Q. Is propeller damaged?
A. Have propeller repaired or replaced.

Q. Is propeller pitch or diameter incorrect?
A. Install correct propeller to operate outboard at its recommended speed (r/min) range.

Q. Is trim angle incorrect?
A. Adjust trim angle to achieve most efficient operation.

Q. Is motor mounted at incorrect height on transom?
A. Have motor adjusted to proper transom height.

Q. Has alert system activated?
A. Find and correct cause of alert.

Q. Is boat bottom fouled with marine growth?
A. Clean boat bottom.

Q. Are spark plug(s) fouled or of incorrect type?
A. Inspect spark plug(s). Clean or replace with recommended type.

Q. Are weeds or other foreign matter tangled on gear housing?
A. Remove foreign matter and clean lower unit.

Q. Is fuel system obstructed?
A. Check for pinched or kinked fuel line or other obstructions in fuel system.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is spark plug gap incorrect?
A. Inspect and adjust as specified.

Q. Is ignition wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Have electrical parts failed?
A. Have serviced by a Yamaha dealer.

Q. Is specified fuel not being used?
A. Replace fuel with specified type.

Q. Is specified engine oil not being used?
A. Check and replace oil with specified type.

Q. Is thermostat faulty or clogged?
A. Have serviced by a Yamaha dealer.

Q. Is air vent screw closed?
A. Open the air vent screw.

Q. Is fuel pump damaged?
A. Have serviced by a Yamaha dealer.

Q. Is fuel joint connection incorrect?
A. Connect correctly.

Q. Is heat range of spark plug incorrect?
A. Inspect spark plug and replace it with recommended type.

Q. Is high pressure fuel pump drive belt broken?
A. Have serviced by a Yamaha dealer.

Q. Is engine not responding properly to shift lever position?
A. Have serviced by a Yamaha dealer.

Engine vibrates excessively.
Q. Is propeller damaged?
A. Have propeller repaired or replaced.

Q. Is propeller shaft damaged?
A. Have serviced by a Yamaha dealer.

Q. Are weeds or other foreign matter tangled on propeller?
A. Remove and clean propeller.

Q. Is motor mounting bolt loose?
A. Tighten bolt.

Q. Is steering pivot loose or damaged?
A. Tighten or have serviced by a Yamaha dealer.

EMU29433

Temporary action in emergency

EMU29440

Impact damage

EWM00870

WARNING

The outboard motor can be seriously damaged by a collision while operating or trailering. Damage could make the outboard motor unsafe to operate.

If the outboard motor hits an object in the water, follow the procedure below.

1. Stop the engine immediately.
2. Inspect the control system and all components for damage. Also inspect the boat for damage.
3. Whether damage is found or not, return to the nearest harbor slowly and carefully.
4. Have a Yamaha dealer inspect the outboard motor before operating it again.

EMU29533

Starter will not operate

If the starter mechanism does not operate (the engine cannot be cranked with the starter), the engine can be started with an emergency starter rope.

EWM01022

WARNING

- **Use this procedure only in an emergency to return to the nearest port for repairs.**
- **When the emergency starter rope is used to start the engine, the start-in-gear protection device does not operate. Make sure the remote control lever is in neutral. Otherwise the boat could unexpectedly start to move, which**

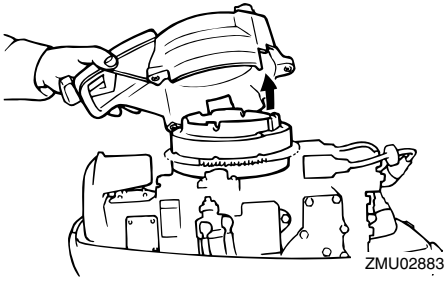
could result in an accident.

- **Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating the boat.**
- **Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**
- **Make sure no one is standing behind you when pulling the starter rope. It could whip behind you and injure someone.**
- **An unguarded, rotating flywheel is very dangerous. Keep loose clothing and other objects away when starting the engine. Use the emergency starter rope only as instructed. Do not touch the flywheel or other moving parts when the engine is running. Do not install the starter mechanism or top cowling after the engine is running.**
- **Do not touch the ignition coil, spark plug wire, spark plug cap, or other electrical components when starting or operating the motor. You could get an electrical shock.**

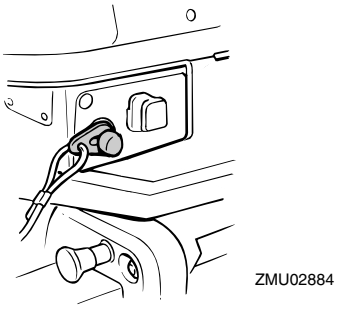
EMU29562

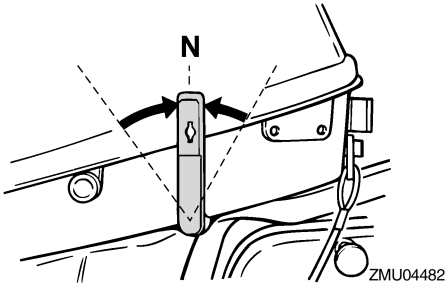
Emergency starting engine

1. Remove the top cowling.
2. Remove the start-in-gear protection cable from the starter, if equipped.
3. Remove the starter/flywheel cover after removing the bolt(s).

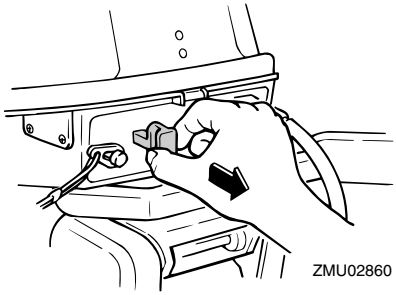


4. Prepare the engine for starting. For further information, see page 31. Be sure the engine is in neutral and that the clip is attached to the engine shut-off switch. The main switch must be "**ON**" (on), if equipped.

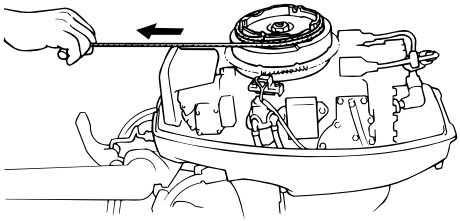




5. If equipped the choke knob, pull out it when the engine is cold. After the engine starts, gradually return the choke knob to its home position as the engine warms up.


ZMU02860

6. Insert the knotted end of the emergency starter rope into the notch in the flywheel rotor and wind the rope several turns around the flywheel clockwise.
7. Give a strong pull straight out to crank and start the engine. Repeat if necessary.


ZMU02885

EMU33501

Treatment of submerged motor

If the outboard motor is submerged, immediately take it to a Yamaha dealer. Otherwise some corrosion may begin almost immediately. ***NOTICE:*** **Do not attempt to run the outboard motor until it has been completely inspected.** [ECM00401]

EMU29820

YAMAHA MOTOR CORPORATION, U.S.A.
OUTBOARD MOTOR TWO YEAR LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. is proud of its heritage and reputation for producing products with high standards of quality and workmanship. Product excellence provides the cornerstone for our commitment to customer satisfaction. The Yamaha Outboard Limited Warranty is your assurance of this commitment.

This warranty provides you with protection against the expense of repairs for your outboard motor that are required as a result of defects in materials or workmanship. When maintained and utilized in the prescribed manner, you can count on your Yamaha outboard to provide reliable service.

This warranty provides you with specific coverage and notes your responsibilities in maintaining and operating your outboard. Please take the time to read and become familiar with this warranty.

PERIOD OF WARRANTY. Any new Yamaha outboard motor purchased and registered with Yamaha Motor Corporation, U.S.A. for pleasure use in the United States, will be warranted against defects in material or workmanship for a period of two (2) years from date of purchase, subject to exclusions noted herein. Any Yamaha outboard motor purchased and utilized for commercial applications will be warranted for a period of one (1) year from the date of purchase, subject to exclusions noted herein. Yamaha peripheral equipment included with the motor, such as gauges, fuel tanks and hoses, remote control boxes, propellers, and wiring external from the motor unit, will be warranted for one (1) year from the date of purchase for either pleasure or commercial use. Replacement parts used in warranty repairs will be warranted for the balance of the applicable warranty period.

The second year of warranty (if applicable) shall be limited to covering the cost of parts and labor for major components only. The major components covered are:

Power Unit Section
- Power Head
- Intake Manifold and Reed Valve Assembly
- Carburetor Assembly and its Related Components
- Fuel and Oil Pump Assemblies
- Ignition System (Standard and Microcomputer)
- Precision Blend ® System

Bracket Section
- Bracket System
- Power Trim and Tilt Assembly

Lower Unit Section
- Exhaust System
- Upper Casing
- Lower Unit Assembly

The warranty described here applies to outboard motor purchased and registered for use in the United States only excluding its territories. For warranty provisions outside the United States, contact the particular country's local Yamaha distributor.

WARRANTY REGISTRATION. To be eligible for warranty coverage, the outboard motor must first be registered with Yamaha Motor Corporation, U.S.A. A warranty registration form is provided in the Owner's Manual with each outboard. This form must be completed and mailed to Yamaha by either the selling dealer or the purchaser. Warranty registration can also be accomplished by any authorized Yamaha outboard dealer. Upon receipt of the registration, an Owner's Warranty Card will be sent by Yamaha to the registered purchaser.

OBTAINING REPAIRS UNDER WARRANTY. To receive repairs under this warranty, a valid Owner's Warranty Card must be presented to an authorized Yamaha outboard dealer.

During the period of warranty, any authorized Yamaha outboard dealer will, free of charge, repair or replace, at Yamaha's option, any parts adjudged defective by Yamaha due to faulty workmanship or material from the factory. All replaced parts will become the property of Yamaha Motor Corporation, U.S.A.

CUSTOMER'S RESPONSIBILITY. Under the terms of this warranty, the customer will be responsible for ensuring that the outboard motor is properly operated, maintained and stored as specified in the applicable Owner's Manual.

The owner of the outboard motor shall give notice to an authorized Yamaha marine dealer of any and all apparent defects within ten (10) days of discovery and make the motor available at that time for inspection and repairs at the dealer's place of business.

GENERAL EXCLUSIONS FROM WARRANTY. This warranty will not cover the repair of damage if the damage is a result of abuse or neglect of the product. Examples of abuse and neglect include, but are not limited to:
1. Racing or competition use, modification of original parts, abnormal strain.
2. Lack of proper maintenance and off-season storage as described in the Owner's Manual, improper mounting of the motor, installation of parts or accessories that are not equivalent in design and quality to genuine Yamaha parts.
3. Operation of the motor at an rpm other than specified, improper propeller selection, use of lubricants, oils, and fuel/oil mixtures that are not suitable for outboard motor use.
4. Damage as a result of accidents, collisions, contact with foreign materials, or submersion.
5. Growth of marine organisms on motor surfaces.
6. Normal deterioration.

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SPECIFIC PARTS EXCLUDED FROM WARRANTY. Parts replaced due to normal wear or routine maintenance such as oil, spark plugs, shear pins, propellers, hubs, fuel and oil filters, brushes for the starter motor and power tilt motor, water pump impellers, and anodes are not covered by warranty. Charges for removal of the motor from a boat and transporting the motor to and from an authorized Yamaha outboard dealer are excluded from warranty coverage.

Specific parts excluded from the second year of warranty (if applicable) are:
- Top and Bottom Cowling
- Electric Components (other than ignition system)
- Rubber Components (such as hoses, tubes, rubber seals, fittings, and clamps)

TRANSFER OF WARRANTY. Transfer of the warranty from the original purchaser to any subsequent purchaser is possible by having the motor inspected by an authorized Yamaha outboard dealer and requesting the dealer to submit a change of registration to Yamaha Motor Corporation, U.S.A. within ten (10) days of the transfer.

EMISSION CONTROL SYSTEM WARRANTY. Yamaha warrants to the ultimate purchaser and each subsequent purchaser, that this engine is designed, built, and equipped so as to conform at the time of sale with applicable regulations under section 213 of the Clean Air Act and this engine is free from defects in materials and workmanship which cause said engine to fail to conform with applicable regulations for one (1) year from date of purchase.

YAMAHA MOTOR CORPORATION, U.S.A. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U.S.A. AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

YAMAHA MOTOR CORPORATION, USA.
1270 Chastain Road
Kennesaw, GA 30144

WARRANTY QUESTIONS AND ANSWERS

Q. What costs are my responsibility during the warranty period?
A. The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accident and collision damages.

Q. What are some examples of "abnormal" strain, neglect, or abuse?
A. These terms are general and overlap each other in areas. Specific examples include:
Running the machine out of oil, operating the machine with a broken or damaged part which causes another part to fail, damage or failure due to improper or careless transportation, and/or tie down. If you have any specific questions on operation or maintenance, please contact your Yamaha outboard dealer for advice.

Q. Does the warranty cover incidental costs such as towing or transportation due to a failure?
A. No. The warranty is limited to repair of the machine itself.

Q. May I perform any or all of the recommended maintenance shown in the Owner's Manual instead of having the dealer do them?
A. Yes, if you are a qualified mechanic and follow the procedures specified in the Owner's and Service Manuals. We do recommend, however, that items requiring special tools or equipment be done by a Yamaha outboard dealer.

Q. Will the warranty be void or canceled if I do not operate or maintain my new outboard exactly as specified in the Owner's Manual?
A. No. The warranty on a new outboard cannot be "voided" or "canceled". However, if a particular failure is caused by operation or maintenance other than as shown in the Owner's Manual, that failure may not be covered under warranty.

Q. What responsibility does a Yamaha outboard dealer have under this warranty?
A. Each Yamaha outboard dealer is expected to:
1. Completely set up each outboard he sells prior to delivery.
2. Explain the operation, maintenance, and warranty requirements to your satisfaction at the time of sale, and upon your request at any later date.

In addition, each Yamaha outboard dealer is held responsible for his setup, service and warranty repair work.

Q. Is the warranty transferable to second owners?
A. Yes. The remainder of any existing warranty can be transferred upon request. The unit has to be inspected and re-registered by an authorized Yamaha outboard dealer for the policy to remain effective.

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Consumer information

CUSTOMER SERVICE

If your machine requires warranty service, you must take it to any authorized Yamaha outboard dealer within the continental United States. Be sure to bring your warranty registration identification or other valid proof of the original date of purchase. If a question or problem arises regarding warranty, first contact the owner of the dealership. Since all warranty matters are handled at the dealer level, this person is in the best position to help you. If you are still not satisfied and require additional assistance, please write:

YAMAHA MOTOR CORPORATION USA.
CUSTOMER RELATIONS DEPARTMENT
1270 Chastain Road
Kennesaw, GA 30144

When contacting Yamaha Motor Corporation, U.S.A. don't forget to include any important information such as names, addresses, model, engine serial number, dates, and receipts.

CHANGE OF ADDRESS

The federal government requires each manufacturer of a motor vehicle to maintain a complete, up-to-date list of all first purchasers against the possibility of a safety-related defect and recall. This list is complied from the purchase registrations sent to Yamaha Motor Corporation, U.S.A. by the selling dealer at the time of your purchase.

If you should move after you have purchased your new outboard, please advise us of your new address by sending a postcard listing your outboard model name, engine serial number, dealer number (or dealer's name) as it is shown on your warranty identification, your name and new mailing address. Mail to:

YAMAHA MOTOR CORPORATION, USA.
WARRANTY DEPARTMENT
P.O.Box 6555
Cypress, California 90630

This will ensure that Yamaha Motor Corporation, U.S.A. has an up-to-date registration record in accordance with federal law.

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IMPORTANT WARRANTY INFORMATION IF YOU USE YOUR YAMAHA OUTSIDE THE USA OR CANADA

Welcome to the Yamaha Family!

Congratulations on the purchase of your new Yamaha Products. Yamaha is committed to exceptional customer satisfaction, and we want your ownership experience to be a satisfying one. Please read the following warranty information to help ensure satisfaction with your Yamaha.

This model was manufactured as a USA specification model, and the warranty statement shown in this manual is for the United States market.
Please note the following information:

1. As explained in the Limited Warranty Statement, the Yamaha warranty covers your Yamaha when it is registered and used in the United States or Canada.

2. If you need repairs while temporarily using your Yamaha in another country, contact the local authorized Yamaha distributor for that country. Yamaha will work with that distributor to make the needed repairs as quickly as possible. If you have to pay for a repair that you believe your warranty would have covered at home, present all repair orders, receipts, or other related documents to your local dealer when you return home. He will be able to contact Yamaha on your behalf to see if any refund can be provided.

TIP:
Your Yamaha model may not be sold in some countries. Therefore, a Yamaha dealer outside the United States or Canada may not have all of the replacement parts or technical information available to provide proper service. This may unavoidably delay repairs. Thank you for your understanding should this happen.

3. If your Yamaha is registered or used primarily outside the United States or Canada, the warranty printed in this manual does not apply to you. Contact the dealer who sold the Yamaha marine power unit to you for customer support information.

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